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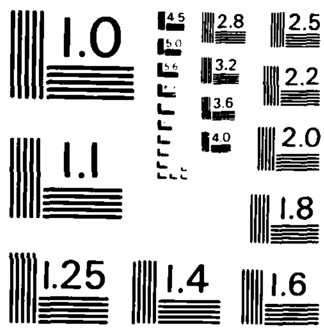

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CLARENCE CANNON DAM & MARK TWAIN LAKE

AD-A160 525

FOUNDATION AND EMBANKMENT COMPLETION REPORT

PART II MAIN DAM

PHASE II CONSTRUCTION AND RELATED CONTRACTS

VOLUME II — NARRATIVE
SECTIONS 10 THRU 13

US Army Corps of Engineers
St Louis District

DECEMBER 1984

FOUNDATION AND EMBANKMENT COMPLETION REPORT
CLARENCE CANNON DAM AND RESERVOIR

PART II MAIN DAM

PHASE II CONSTRUCTION AND RELATED CONTRACTS
VOLUMES I and II - NARRATIVE

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SECTION 10

EMBANKMENT

A. General

Phase II of the Clarence Cannon Dam Project included the construction of three earthen structures: (1) the main dam embankment, (2) the Water temperature control weir and (3) the saddle dam.

1. The main dam embankment is a fully compacted clay fill section with rock fill end cones and an internal seepage control system. The seepage control system is comprised of a 10 foot thick vertical chimney drain with its upstream face at the embankment centerline beginning at Elevation 640 feet NGVD and intersecting a horizontal filter blanket at Elevation 545 feet NGVD, (b) a 3 foot thick sand blanket which extends downstream from the centerline approximately 450 feet to a perforated toe drain system (c) 10 foot wide (minimum) pervious blanket against a portion of the downstream left abutment face and (d) a perforated pipe drainage system outside and parallel to the Tailrace and Stilling Basin Walls. All features of the downstream seepage control system are interconnected.

The top of the main dam embankment is Elevation 653 feet NGVD at the concrete structure, Elevation 654 feet NGVD north of Station 11+00 and extends from Station 9+80.75 at the structure to Station 21+00 at the left abutment. The top width is 38 feet. The lower elevation ranged from 485± feet NGVD adjacent to the concrete structure, 515± feet NGVD in the diversion channel to 542± feet NGVD in the area of the Phase 1 fill. The upstream slope is 1V:3H from the toe to Elevation 585± feet NGVD, 1V:10H to Elevation 605± feet NGVD and 1V:3.5H to the top. Sixten inches of 300-pound riprap were placed on 6 inches of 3-inch top-size bedding

from Elevation 585 feet NGVD to Elevation 604 feet NGVD and 22 inches of 900-pound riprap were placed on 9 inches of 3-inch top-size bedding from Elevation 604 feet NGVD to Elevation 654 feet NGVD. The downstream slope is 1V:3H from Elevation 555 feet NGVD to Elevation 563 feet NGVD, 1V:6H to Elevation 611 feet NGVD and 1V:3H to the top. The downstream slope was dressed with 12 inches of topsoil and seeded. The slopes defined above do not include the templates of access roads located on each slope.

Missouri Route J was relocated along the top of the dam, access road "D" was constructed from the left abutment down the downstream slope. An access ramp was constructed from the left abutment down the upstream slope. Relocated Route J is 22 feet wide with 6-foot shoulders and was surfaced with asphaltic concrete. Access road "D" is 20 feet wide with 4-foot shoulders and surfaced with asphaltic concrete. The upstream ramp is 30 feet wide and surfaces with roadstone (refer Drawings Nos. 104/2, 100/2, 101/2, 103/2, 105/2, 106/2, 107/2, 108/2 and 109/2 for plans, sections and details of the embankment and Drawings Nos. 111/2 and 112/2 for profile and details of roads).

2. The Water Temperature Control Weir overlies the upstream cutoff (described in Section 5) and extends from the right abutment at approximate dam Station 2+00 to Station 8+35± where it ties into the main dam embankment. Centerline of the weir is 400 feet upstream and parallel to the axis of the main dam. The top of the weir is 30 feet wide at Elevation 580 feet NGVD with 1V:3H upstream slope and 1V:8H downstream slope.

Other features included a 72-inch CMP, the flow line of which is at Elevation 520 feet NGVD, the upstream end is at Station 3+93± and downstream end at Station 5+53±.

This feature was sealed during impoundment with a 1/2 inch thick steel plate bolted over the intake when the pool reached Elevation 583 feet NGVD. The construction of a cutoff trench with 1V:2H slopes and a 5 foot bottom was excavated through sands/gravels to shale and then backfilled with clays. The cutoff extended the width of the original river channel adjacent to and outside the toe of each weir slope, gabions were placed at the toe of each slope across the width of the original river channel from Elevation 520 feet NGVD to Elevation 526 feet NGVD. The downstream gabion structure extends from Station 3+88± to Station 5+84±, the upstream gabions from Station 2+12± to Station 4+62±, concrete capstone weighing 5,100± pounds with dimensions of 3.25 feet by 3.25 feet by 3.25 feet were placed on 12 inches of riprap on plastic filter cloth in an area 60 feet wide (Station 5+95.5 to Station 6+55.5) from the intake of the reversible generator pump turbine unit to a point 445 feet upstream of the dam axis at Elevation 570 feet NGVD on the upstream slope of the Water Temperature Control Weir; a 27-inch layer of 900-pound riprap was placed on filter cloth adjacent to the capstone and 22 inches of 900-pound riprap on 6 inches of crushed limestone bedding were placed on the downstream slope. Thirty-six inches of revetment were placed on the upstream slope of the weir (refer Drawing No. 110/2 for plans, sections and details).

3. The saddle dam is compacted fill located in two low areas of a natural saddle, the south end of which is approximately one mile north of the main dam. The total length of the saddle dam is 2,200± feet with a top width of 18 feet. The top elevation is 653 feet NGVD with the height varying from 0 to 14± feet and 1V:3H side slopes. Prior to placing fill, a 5-foot deep inspection trench was excavated and backfilled along the

centerline of the dam. A 10-foot wide crushed stone roadway was constructed along the top of the fill. Slopes were top dressed and seeded (refer Drawing Nos. 113/2 and 114/2 for plans, profile and sections).

B. Material Source

1. On-Site Borrow

(a) Impervious

Materials placed in impervious fills were obtained from Borrow Areas Nos. 1, 2 and 4, the structural excavation, the diversion channel excavation, the exit channel excavation, downstream channel widening and Missouri Route J relocation. Borrow Area No. 3 was depleted during Phase I construction.

In addition to the structural, diversion channel, downstream channel widening and exit channel excavations, Borrow Areas Nos. 1 and 2 were located within the alluvial floodplain of the Salt River. These deposits exhibited the characteristics normally associated with alluvial deposits, namely, stratifications and pockets/lenses of sands and/or gravels. Borrow Area No. 1 was located approximately 1/2 mile downstream and Borrow Area No. 2 approximately 1/4 mile upstream of the dmain dam. Valley clays were predominately silty clays CL, and sandy clays CL with occasional pockets/lenses of clays CH, silts CL-ML and clayey sands SC. Color of clays varied widely. For the most part, areas of pockets/lenses of more pervious materials were loaded in a manner so that, after processing, the material was suitable for use in the impervious zones. However, larger pockets of materials unsuitable for the impervious zones were utilized in the upstream berm, the third-stage cofferdam, hauled to a waste area or left in place. Borrow Area No. 4 was located approximately one mile north

of the main dam and was an upland borrow of glacial till origin. Virtually all clays utilized from Borrow Area No. 4 were sandy clays CL with liquid limits of 35+ and clays CH with liquid limits up to 90±. During Phase I construction three long trenches were excavated in Borrow Area No. 4 to a depth of 10 feet or to the top of the residual chert which ever occurred first for the purpose of confirming the suitability of the materials for embankment construction. Details of this investigation and results of testing are discussed in Section II of Phase I Foundation Report. Materials from Borrow Area No. 4 were used for the saddle dam and were the primary source of clays placed in the main dam embankment beginning October of 1982 (Refer Plate No. 8 for lower limits of Borrow 4 material). From experience gained from Phase I trench excavation, construction of the saddle dam and excavation of numerous test pits excavated in 1980, 1981, and 1982, it was determined that moisture in a large part of Borrow Area No. 4 clays was excessive (up to optimum +5%). In order to expedite project completion, the Contractor was directed by modification to pre-process and stockpile approximately 72,000 cubic yards of Borrow Area No. 4 clays in late 1982 and an additional 12,000± cubic yard in early 1983.

The part of Missouri Route J relocation from the main dam north 4,700± feet and south 6,000± feet was included in the Phase II contract. The upper stratum (up to 10± foot depth) of the cut areas consisted of clays similar to those in Borrow Area No. 4 except that more rock fragments were present. These clays were stockpile in the early stages of construction when cuts were made and later placed in the selected portions of the down-stream area of the embankment and the third-stage cofferdam.

As construction progressed, it became evident that Borrow Areas Nos. 1, 2 and 4 with the limits as shown on the contract drawings along with other

clay sources described above would be inadequate. Contract specifications addressed Borrow Area No. 5 as a source of additional clays if needed; however, due to the long haul distance, the necessity for a large amount of clearing (cost was to be negotiated)) and the close proximity of the borrow area to a recreational area, it was deemed more expedient to extend the limits to Borrow Areas Nos. 1, 2 and 4. The contract was modified to extend the limits of these borrow areas in depth and area. Sketches of Borrow Areas Nos. 1 and 4 are shown on Plates Nos. 1 and 2.

High mositure content was a problem in a major part of clays from all sources except Route J relocation. As the result of this, the rate of placement was frequently limited, at times work was delayed and on may occasions the Contractor elected to pre-process and stockpile clays.

Diversion of the river through the sluices in the concrete structure limited the rate of flow of the river, the result of which was frequent flooding of Borrow Area No. 2 which exaggerated the problem of high mositure content and at times rendering the clays unavailable when needed. To alleviate this problem, the Contractor was directed by modification to excavate and stockpile approximately 95,000 cubic yards of clays from Borrow Area No. 2. The Contractor stockpiled 159,256 cubic yards in the summer of 1979.

For the most part, the various sources of clays placed in the main dam were used in the following order; however two or more were utilized simultaneously at different times: (1) structural excavation, (2) diversion channel excavation, (3) Borrow Area No. 2, (4) Borrow Area No. 1 and (5) Borrow Area No. 4. The exit channel clays were placed simultaneously with Borrow Areas Nos. 1 and 2. Materials from the downstream channel widening simultaneously with Borrow Area No. 1. Route J relocation clays

with Borrow Areas Nos. 1 and 4 (Refer Drawing No. 99/2 for location, plans and sections of borrows).

(b) Random

The primary sources of materials used in the random fill area were the stratum of sands and gravels underlying clays in the area of the structural and exit channel excavations, materials from excavation of the left abutment drainage ditch after flooding in 1981, a stratum of residual chert lying between the overburden clays and limestone in excavations on the north and south abutments, materials that were suitable for random fill but unsuitable for impervous fill excavated during preparation of the diversion channel for backfill, materials used for Contractor's work areas in the vicinity of the concrete plant and degrading of Contractor's haul roads. At various times, materials from the fully compacted fill that had been contaminated as the result of the Contractor's operations, flooding, erosion, etc., were placed in the random fill. Minor amounts of materials from various other sources were also utilized.

2. Off-Site Borrow

(a) Pervious

Material placed in all pervious zones of the embankment was hauled to the job site by trucks from a pit of sands deposited by the Mississippi River. The deposit was located approximately three miles south of LaGrange, Missouri and operated by Missouri Gravel Company. Particle shape of all sands used in the pervious zones was rounded, predominately silica in composition, and based on gradation tests all sands classified PS.

End cone rockfills and 10-foot wide upstream bedding layer will be addressed with revetment.

(b) Aggregate Filter

Two sizes of aggregate filters were used. They were designated Filter "A" and Filter "B".

Filter "A" was a dense crushed limestone from the Kimswick Formation and was hauled by truck to the job site from a quarry located at Huntington, Missouri and operated by Central Stone Company. Maximum nominal size of Filter "A" was 3-inch. Use of this material was limited to the downstream wall drainage system, the locations and details of which are shown on Drawing No. 105a/2.

Filter "B" was from the same source and of the same composition as Filter "A" but with 1/2-inch maximum nominal size.

(c) Revetment

Stone used for all sizes of riprap placed on the permanent embankment of the main dam was made from the Kimswick Formation of limestone quarried by Central Stone Company at Huntington, Missouri, This material was a hard, dense stone with specific gravity of 2.60 to 2.68 and absorption of 0.5 to 1.5. The 36-inch revetment placed on the upstream slopes of the third-stage cofferdam and Water Temperature Control Weir was obviously for temporary protection. Stone used for this was limestone blasted from the left abutment excavation.

Two sources were used for bedding stone. A relatively small amount of bedding used in the early stages of construction was of the same origin and had the same characteristics as the riprap stone described above. The second source was two ledges of the Burlington Limestone at the Cladwell Quarry also operated by Central Stone Company and located approximately five miles south of the dam site. Th upper ledge was weathered in some

areas and was generallly softer and more porous than the lower ledge. The lower ledge was a hard, dense limestone. Stone from the upper and lower ledges was utilized simultaneously in the production of bedding.

All stone utilized for the production of rock fill for the end cones was from the two Burlington ledges of limestone at the Cladwell Quarry as described above for bedding. Specifications stated that rock for the outside five feet of the rock fill shall meet stone quality requirements for riprap. A major part of the upper ledge was less than riprap quality and, for this reason, only stone from the lower Burlington ledge was used for the outside five feet of the end cones. The stone placed in areas other than the outside five feet was produced from both ledges.

Capstones for the Water Temperature Control Weir were cast by Mid-State Concrete Company at their plant near Fulton, Missouri. Concrete design used consisted of 1,900 pounds of 1 1/2-inch rock from the Burlington Formation of limestone produced at the Callaway Rock Quarry near Millerburg, Missouri; 1,550 pounds of sand produced by Callaway County Sand Company from the Missouri River near Mokane, Missouri; 525 pounds of Type I cement produced by Universal Atalas Cement Company near Hannibal, Missouri. Air entraining agent was M.B.V.R. produced by Master Builders. Average air content of concrete was 5%±. Generally the slump was near 0. Compressive strength at 28 days was approximately 5,000 psi and the average weight of each block was 5,100± pounds.

The plastic filter cloth was Laural Erosion Control Cloth, Type I, manufactured by Laural Plastics, Inc., of Madison, Maine, and fabricated by Advanced Construction Specialties Company f Memphis, Tennessee.

Gabions were two cell, 3-foot by 3-foot galvanized wire baskets furnished by Maccaferri Gabions, Inc., St. Louis, Missouri. They were filled with 6-inch concrete stone from Central Stone Quarry, Huntington, Missouri.

C. Preconstruction Testing

Preconstruction testing, used to develop design values, has been previously presented in detail in DM#12 #Embankment Design Main Dam" dated 10 November 1969 and DM#13 "Phase II Main Dam and Spillway" dated 27 August 1970. Generally the testing consisted of standard laboratory tests performed at the Waterways Experiment Station and the St. Louis District laboratories. The tests were selected to determine necessary physical and engineering properties of both soil and rock. Foundation materials as well as material to be utilized in the construction of the embankment section were tested.

D. Embankment

1. Utilization of Materials

(a) Structural Backfill

Sands and gravels placed in the backfill zones came from the stratum of river deposited sands and gravels underlying the overburden and other excavations in the vicinity of the dam structure. Clays utilized were excavated from the alluvial floodplain in the vicinity of the dam structure. Sands (pervious fill) placed in the backfill outside the tailrace and stilling basin walls were from the Mississippi River deposit near LaGrange, Missouri.

(b) Water Temperature Control Weir

Clays placed in the water temperature control weir (except the diversion notch) and the upstream cutoff were from Borrow Area No. 2 and other excavations in the vicinity of the main dam, all of which were within the Salt River floodplain. Clays placed in the diversion notch were from Borrow Area No. 1, Borrow Area No. 4 and the exit channel excavation.

(c) Saddle Dam

Materials placed in the saddle dam were clays from upland Borrow Area No. 4 and the inspection trench excavated beneath the saddle dam, the material from which was similar to Borrow Area No. 4 material.

(d) Rockfill

For materials utilized in rockfill refer Paragraph 10B(2)(c).

(e) Random Fill

For materials utilized in random fill refer Paragraph 10B(1)(b).

(f) Upstream Berm Enlargement

For the most part, the materials placed in the semi-compacted upstream berm were from Borrow Area No. 2. Other materials placed included stockpiled clays from Highway S-JB north excavation and minor amounts from various other sources. All materials placed in the 3-foot clay blanket were from Borrow Area No. 2.

(g) Main Dam Embankment

All materials placed in the fully compacted impervious zone of the main dam embankment below the lower limits of the hatched zone at El. 565 feet NGVD (refer Drawings Nos. 102/2 and 103/2) and below El. 575± feet NGVD upstream of the hatched zone were from the Salt River floodplain excavation. Clays placed in the hatched zone were primarily from Route J relocation excavation excavations with lesser amounts from Borrow Areas Nos. 1 and 4. Those placed upstream of the hatched zone and above El. 575 feet NGVD were primarily from Borrow Area No. 4 with lesser amounts from Borrow Area No. 1 and stockpiled Borrow Area No. 2 clays. Sands placed in the pervious fill, pervious backfill and filter zones were from the Mississippi River deposit near LaGrange, Missouri defined in Paragraph 10B(2)(b).

2. Embankment Placement

(a) Structural Backfill

Placement of the backfill was started in July 1976 and continued until it was essentially completed in August 1978. In areas inaccessible to haul equipment, materials were deumped as near as practicable to the placement then placed and spread using dozers and/or end loaders. In general, the Contractor placed backfill on 10-hour shifts six days per week.

Equipment used at various times and in various combinations included the following:

One (1) CAT D5 Dozer
One (1) CAT D6 Dozer
Two (2) CAT D8 Dozers
Four (4) CAT 637 Scrapers
One (1) CAT 631 Scraper
One (1) CAT 651 End Loader
One (1) CAT 677 End Loader
Two (2) Terex 50-ton End Dumps
Two (2) Euclid FD97 End Dumps
One (1) CAT 619 Waterwagon

(b) Water Temperature Control Weir

Except for minor amounts placed previously, the water temperature control weir was started in August 1974. A temporary closure plus was constructed in the south end of the weir to El. 551± feet NGVD. The closure plug was placed simultaneously with the remaining reach of the weir then in July 1979 was degraded to El. 526 feet NGVD. The notch thus formed was for diversion of the Salt River through the sluices in the concrete structure. Placement of permanent fill outside the diversion notch was performed intermittently until final grade was reached (El. 580 feet NGVD) in September 1978. The diversion notci was filled in July and August 1983 using 87,000± cubic yards of clays. Materials were dumped in place with scrapers, spread with dozers and blended with motorgraders and disks. Equipment used in varying degrees and combinations included the following:

Four (4) CAT 631 Scrapers
Six (6) CAT 637 Scrapers
One (1) CAT D6 Dozer

Four (4) CAT D8 Dozers

Two (2) CAT D9 Dozers

One (1) CAT 12 Motorgrader

One (1) CAT 16 Motorgrader

One (1) Rome 28-inch Disc Plow

One (1) Rome 32-inch Disc Plow

One (1) Rome 36-inch Disc Plow

One (1) CAT 619 Waterwagon

One (1) Euclid Waterwagon

One (1) Case 1470 Tractor

One (1) International 4100 Tractor

One (1) John Deere 8850 Tractor

(c) Saddle Dam

Fill placement on the saddle dam was started in July 1974 and completed to El. 653 feet NGVD in September 1974. Clays were hauled by scrapers and dumped in place then spread with dozers and blended using disks. Equipment used included the following:

Two (2) CAT D8 Dozers

One (1) CAT D9 Dozer

Four (4) CAT 637 Scrapers

Two (2) CAT 631 Scrapers

One (1) Rome 32-inch Disc Plow

One (1) CAT 16 Motorgrader

One (1) Case 1470 Tractor

(d) Rock Fill

Placement of rock fill end cones was started in November 1976 and was placed simultaneously with the adjacent embankment. The stone was dumped in place and spread as required to a maximum lift thickness of 24 inches.

Various sizes of dozers were used for spreading stone depending on availability at the time needed. Placement was completed in the spring of 1984.

(e) Random Fill

Placement of random fill started in October 1975 and was placed intermittently until it was completed in the spring of 1984. Generally, placement was performed when conditions were unsuitable or allowed only limited placement in moisture controlled fills or when materials unsuitable for other zones were encountered in excavations. Equipment utilized for placement varied widely depending on availability of equipment, quantity and type of material to be placed at the time and location of the source in relation to the fill. Some of the equipment utilized at various times and in various combinations included the following:

Four (4) CAT D8 Dozers
One (1) CAT D6 Dozer
Two (2) CAT D9 Dozers
Three (3) CAT 630 Bottom Dumps
One (1) Euclid 23TDT Bottom Dump
Four (4) CAT 631 Scrapers
Six (6) CAT 637 Scrapers
Two (2) Terex 50-ton End Dumps
Two (2) Terex 35-ton End Dumps
Two (2) Terex 28-ton End Dumps
Two (2) Euclid FD97 End Dumps
One (1) CAT 245 Backhoe
One (1) Bucyrus-Erie 38B Dragline

(f) Upstream Berm Enlargement

Placement in the upstream berm started in October 1979 and was completed in August 1983. For the most part, placement in this area was performed when wet conditions prohibited or curtailed placement on the main dam embankment. In general, materials were hauled to the fill with scrapers and spread in 12-inch layers with dozers. Equipment used at various times and in various combinations included the following:

Four (4) CAT D8 Dozers
One (1) CAT D6 Dozer
Two (2) CAT D9 Dozers
Two (2) CAT 631 Scrapers
Two (2) CAT 637 Scrapers

(g) Main Dam Embankment

Except for minor amounts, placement of impervious fill in the main dam started in August 1979. Specifications stated that, within an area 60 feet upstream and downstream of centerline, only clays CL and CH would be placed in the impervious zone. This requirement was seldom a problem since materials placed in the impervious zone were rarely materials other than clays CL or CH. There were occasions, however, when the materials were questionable for use in this area in which case they were placed outside the select clay zone. In general, clays were hauled to the fill with scrapers, spread to the required 8-inch depth and blended using motorgraders and disc plows. At the contacts with the left abutment, the concrete structure and areas inaccessible for heavy equipment, the clays were processed before final placement. In those areas where it was necessary to use hand tampers, clays were spread to a maximum of 4 inches before compaction as required by the specifications. When the clays could not be excavated by a scraper due to their high mositure content and/or due to the nature of the underlying material (sand pockets), the contractor would top load the

hauling equipment with backholes and/or draglines. These clays were then stockpiles and pre-processed before being incorporated into the embankment. For the most part, the Contractor placed ill on one 10-hour shift per day, six or seven days per week when conditions were suitable. However, fill was placed on two 10-hour shifts per day from July 1980 through September 1980. Due to high moisture content of clays and poor drying conditions at night, which often delayed placement on the day shift, it was concluded that night shift placement unde these conditions was not feasible. Impervious fill placement on the main dam embankment was completed in September 1983. The following equipment was used at various times and in various combinations for hauling and processing impervious fill for the main dam:

Four (4) CAT 631 Scrapers
Two (2) CAT 633 Scrapers
Twelve (12) CAT 637 Scrapers
Two (2) Terex TS24 Scrapers
One (1) CAT D5 Dozer
Two (2) CAT D6 Dozers
Five (5) CAT D8 Dozers
Two (2) CAT D9 Dozers
Five (5) CAT 630 Bottom Dumps*
Two (2) Euclid 23TDT Bottom Dumps*
One (1) Bucyrus-Erie 38B Dragline**
One (1) Bucyrus-Erie 88B Dragline**
One (1) CAT 245 Backhoe**
Three (3) CAT 14 Motorgraders
One (1) CAT 16 Motorgrader
Two (2) Rome 28-inch Disc Plows
Two (2) Rome 32-inch Disc Plows
Two (2) CAT 830 Tractors
One (1) John Deere 8440 Tractor
Two (2) John Deere 8640 Tractors
One (1) John Deere 8850 Tractor

One (1) Case 1470 Tractor
One (1) International 4100 Tractor
One (1) CAT 619 Waterwagon
One (1) CAT 630 Waterwager
One (1) CAT 631 Waterwagon
One (1) Euclid Waterwagon
One (1) 50-ton Rubber-tired Roller
One (1) Hyster 250A Vibratory Roller***
One (1) Raygo 410A Vibratory Roller***

*Bottom dumps were used to haul wet clays to stockpiles for pre-processing.

**Draglines and backhoe were used to top load hauling equipment.

***Rollers were used, without vibrator, to seal partial fills.

Sand blanket and sand chimney placement started in July 1980. These sands were, for the most part, placed on one 10-hour shift per day, seven days per week except for the period from July 1980 to September 1980 when placement was performed on two 10-hour shifts per day. The 3-foot sand blanket was completed in August 1980 and that part lost as the result of the July 1981 flood was replaced in September 1981 and October 1981. Sands were periodically stockpiled to supplement truck delivery as needed; however, most of the materials were dumped in place as they arrived on the job site. Various sizes of dozers and end loaders were used to spread the sand depending on the size and configuration of placement. The method of placing the sand chimney was: The impervious fill was raised approximately 5 feet to 6 feet above the sands; the chimney was laid out; the clays were trenched back to the top of the sand; sands were dumped into the trench and spread to lift thickness then compacted. This procedure was followed throughout the sand chimney placement. The sand chimney was completed in September 1983 and the left abutment sand blanket in August 1983.

Equipment used at various times and in various combinations for pervious fill placement included the following:

One (1) CAT 951 End Loader
One (1) CAT 977 End Loader
One (1) CAT D6 Dozer
Three (3) CAT D8 Dozers
Two (2) Terex 33-05 End Dumps*
One (1) Euclid FD97 End Dump*
Three (3) CAT 637 Scrapers**
One (1) CAT 988 End Loader**
One (1) CAT 245 Backhoe**

*Used to haul sand from stockpile to placement.

**Used to load sand at stockpile. Backhoe was also used for trenching through clays for sand chimney.

3. Changes in Embankment Sequence Due to the July 1981 Flood

The July 1981 flood resulted in significant damage to the main dam embankment. As a result, some restoration work was required and the placement sequence for the remaining embankment was modified.

(a) Preflood Conditions

The Salt River was diverted through the main dam concrete structure in the summer of 1979 and shortly thereafter the Contractor began placing compacted fill in the diversion channel along the left abutment. Work in this limited area continued through the end of the season and up to the labor strike of May and June 1980. Soon after the strike, the Contractor shaped the embankment and placed the downstream sand drainage blanket. By late August 1980, the blanket was covered and the Contractor was in a position to place and compact fill over a wide, unrestricted embankment surface extending from the upstream to downstream toe, and from the concrete structure to the left abutment (refer Aerial Photograph No. 191/2).

Working "toe to toe" under these original contract conditions, the Contractor used a 10-scraper spread to haul moist, silty and sandy clays (low CL) from Borrow Area No. 1 to the main dam. Although these workable soils were slightly wetter than the 1.0% above optimum water content allowed by the specifications, the wide embankment surface permitted the Contractor to place a lift of material at a high production rate, yet provided sufficient time for necessary drying, processing and compaction before placement of the succeeding lift. Excluding brief periods when scrapers were diverted to modification work on the downstream channel widening, the Contractor's 10-scraper spread averaged 9,800 cubic yards per shift borrow excavation and his 2-disc and 2-roller compaction spread averaged 8,500 cubic yards per shift compacted fill. These conditions continued through the end of the 1980 season within the zone indicated in Plate No. 3.

Based on the main dam template design and the workable borrow soils, the Contractor anticipated continuation under "toe to toe" conditions with a gradual decrease in work area as the embankment progressed toward final grade.

The 1981 construction season opened with the removal and replacement of approximately 2 feet of frost damaged material under Modification No. P00138. Shortly after completion of this work, a long period of intermittent rainfall developed with 8.3, 7.0 and 8.7-inches of precipitation falling at the site in May, June and July 1981 (normal rainfall is 13.6 inches in this period). These unusual weather conditions hampered embankment production in 1981 and set the stage for the July flood.

(b) <u>July 1981 Flood and Changed Embankment Sequence</u>

Heavy rainfall in July 1981 caused sever flooding on the Salt River and ultimate breaching of the third-stage cofferdam protecting embankment work downstream (refer Aerial Photograph No. 192/2). Flood waters overtopping the main dam embankment resulted in heavy damage downstream of the vertical sand chimney (refer Aerial Photograph No. 193/2). Much of the pervious chimney was destroyed and the downstream embankment and underlying horizontal blanket drain were severely eroded between Stations 13+50± and 17+50±. The majority of the toe drain was destroyed and a significant portion of the downstream rock fill end cone and filter zone was removed.

Flood losses included 187,000 cubic yards of compacted fill, 34,000 cubic yards of random fill, 54,000 tons of pervious fill (chimney, blanket drain and end cone filter zone), 11,000 tons of rock fill, dislocation of piezometer terminal wells, moderate damage to settlement and pore pressure instrumentation and virtual destruction of downstream drainage structures. A typical section through the flood damaged embankment is shown in Plate No. 4.

Following the flood, SLD, LMVD and OCE held Geotechnical Conferences on 11 and 25 August 1981 concurring on restoration and future flood protection measures. (Refer Memorandum For Record Due to Cofferdam Flooding, dated 26 August 1981 and 29 September 1981 and Letter Report dated 15 September 1981, Subject: Effects of Flood Event of July 1981 on Project Cost and Schedules, Clarence Cannon Dam and Reservoir, Salt River, Missouri). It was agreed that restoration would generally consist of the following work:

(1) Restore the third-stage cofferdam to Elevation 581 feet NGVD.

(2) Shape, process and proof test the undamaged upstream embankment surface in preparation for continued fill placement.

(3) Drain and excavate erosional debris from the damaged downstream embankment. In the heavily eroded area between Stations 13+50 and 17+50, excavation would extend below the exumed horizontal blanket drain and side slopes would be trimmed to expose suitable clay embankment and dense uncontaminated sections of the adjacent undamaged blanket drain. In remaining areas, including the sand chimney, left abutment drain, rockfill end cone and adjoining filter zone removal would extend to dense, clean pervious materials and any adjacent clay slopes would be notched into suitable embankment material.

(4) Remove damaged embankment adjacent to the concrete structure contact exposing acceptable impervious material.

(5) Remove the damaged toe drain system from Manhole No. 2 to Manhole No. 4.

(6) Upon satisfactory removal of damaged materials, reconstruct embankment and drainage systems in accordance with contract specifications.

(7) Repair damaged instrumentation and terminal wells as discussed in Instrumentation Section.

(8) Concurrent with the above restoration measures, continue embankment work by constructing a trapezoidal fill section (2H:1V upstream slope, 2.5H:1V downstream slope) on the undamaged upstream embankment as shown in Plate No. 5. This section, known as the Embankment Protection (E.P.), was to extend to El. 590 feet NGVD (30-foot top width) from the concrete structure to the left abutment (offset 215 feet upstream), thus providing additional flood protection for downstream repairs and future work.

In early August 1981, downstream cleanup and reconstruction of the sand blanket and chimney drain began. Concurrently, the Contractor proceeded with placement of compacted fill in the narrow E.P. section as directed. As the E.P. advanced toward completion, compacted fill was also placed upstream and downstream of the section to progress the work as much as possible. By season's end, the Contractor had placed approximately 200,000 cubic yards of compacted fill in these areas as shown in Plate No. 6. In addition to the upstream work, the restored downstream sand blanket had been covered with approximately 5 feet of impervious compacted fill.

During construction of the E.P. (refer Aerial Photograph 194/2) and adjacent embankment, the Contractor's work area and equipment manuverability were greatly restricted in comparison to the "toe to toe" work area available in 1980 under original contract conditions. The changed embankment configuration resulted in less fill placement area and a shortage of drying time between lifts. In addition, Borrow Area No. 1 and Stockpile No. 2 soils being hauled to the fill were wetter than anticipated due to the year's unusual rainfall and inundation by the flood. To compensate for these conditions and meet specifications, the Contractor increased borrow pit disking and decreased his scraper spread to allow more drying time in the pit and between lifts on the fill.

Averaging less than 5 scrapers per day (4 from Borrow Area No. 1), the Contractor's compacted fill production dropped to 4,200 cubic yards per day. This represented a 50% loss in comparison to the 8,500 cubic yards per day attained under the preflood conditions in the later summer and fall of 1980.

In addition to the above adversities, continuation of preflood contract work such as downstream rockfill end cone, filter zone, chimney and abutment drains and instrumentation was delayed while downstream flood restoration proceeded.

(c) 1982 Construction Season

Frost damaged embankment was again removed and replaced in April and May 1982 by Modification No. P00151. Upon completion of this work, the Contractor's efforts were directed toward completing downstream flood repairs and then raising the downstream embankment to the level of the E.P. The washed out downstream embankment was restored to preflood surface (approximate El. 567 feet NGVD) by August 1982 and the eroded downstream end cone followed in September 1982. Upon reaching the preflood surface, the Contractor continued contract embankment placement downstream of the E.P. as shown in Plate No. 7. The restricted work area again required additional borrow disking and reduced scraper spread resulting in slower production. In fact, the Contractor averaged only 4,500 cubic yards per day of compacted fill in this zone in 1982 and by the end of the season, the average embankment elevation was 591 feet NGVD.

(d) 1983 Construction Season

The 1983 construction season opened with a brief delay for removal of frost damaged material. Contract work resumed on a reasonably plane embankment surface similar to the preflood "toe to toe" condition available in 1980 as shown in Plate No. 8. Naturally, the embankment surface area decreased and the compacted fill production did not approach the average 1980 rate of 8,500 cubic yards per day.

The Contractor completed embankment work in 1983 by compacting 566,000 cubic yards in the main dam and 84,000 cubic yards in the closure notch of the water temperature control weir. Under the original contract, most main dam borrow would have consisted of lean, workable silty clays (low CL) from valley sources, while the water temperature control weir notch would have been constructed of tough, plastic sandy clays (CL and CH) of glacial origin from upland Borrow Area No. 4. However, the affects of numerous modifications over the life of the contract and the loss of 187,000 cubic yards of compacted fill during the 1981 flood resulted in a contract shortage of borrow material. In fact, at the beginning of the 1983 season only 120,000 cubic yards remained in Borrow Area No. 1. As a result, the majority of the 1983 borrow for the main dam embankment came from expanded Borrow Area No. 4 which was added by Modification No. P00091 and later revised by Modification No. P00101. Expanded Borrow Area No. 4, like Borrow Area No. 4, consisted of tough, plastic glacial till.

The change from originally planned valley borrow to the upland source for the main dam embankment affected compacted fill production in at least three ways. First, the average haul for upland borrow was about 1.3 miles until the left abutment access ramp was completed and thereafter the haul was just over 1 mile; a comparative quantity of valley material from Borrow Area No. 1 would have had a haul of about 4,000 feet. The longer haul resulted in slower delivery and thereby decreased compacted fill production. Conversely, the upland borrow materials were often excavated within moisture content specifications allowing lifts to be placed "back to back" without the need for drying delays between lifts as was required for valley borrow and allowed the Contractor to utilize

a night shift for fill placement operations near the concrete structure and left abutment embankment contact zone. Finally, despite the moisture advantage of the upland borrow, the toughness and plasticity of these materials required more equipment and considerably more effort to breakup, mix, blend and compact each lift.

Due in part to the above factors, the Contractor averaged 6,000 cubic yards per day of compacted fill for the main dam embankment in 1983. Equipment spread generally consisted of an average of 10 scrapers hauling borrow material and 2 dozers, 1 grader, 4 tractors with disks and 3 sheepsfoot rollers processing and compacting fill on the embankment.

The closure section of the water temperature control weir was constructed of pre-processed Borrow Area No. 1 material which had been stockpiled on the upstream berm enlargement allowing quick placement. Utilizing a 6-scraper spread, the Contractor placed an average of 9,200 cubic yards per shift during the 24-hour per day closure period.

4. Compaction and Moisture Control

(a) Impervious Fill

Design shear strenghts on which the embankment slopes were based were very sensitive to placement moisture contents and degree of compaction. This fact was repeatedly pointed out in both design and Phase I record sample testing. Therefore, it was imperative that close control of placement moisture and compaction be exercised. Specified limits were: That moisture content of the fully compacted clays (other than those adjacent to the left abutment and the concrete structure) be between -2% and +1% of optimum; that moisture content at the contacts with the concrete structure and the left abutment within the limits of final foundation preparation between optimum and +3% of optimum; that six passes of the roller be made; that 8-inch loose lifts be placed; that the Contractor adjust

the moisture content of the soil as needed to meet the above requirements. Not specified, but desired, was 95% compaction compared to Standard Proctor test.

Specifications described in detail rollers to be used for compaction of impervious fill materials. The description prohibited the use of large self-propelled rollers. During early stages of construction, the Contractor requested permission to use a self-propelled CAT 825 compactor modified with Caron convertible wheels and agreed to construct test fills as needed for evaluation of performance. In June 1974, two test fills were constructed, one each using valley borrow and upland borrow materials. Each fill was divided into two sections, one section was compacted by four trips of the Caron wheel roller on each lift, the other by six trips. Five lifts were placed in each fill. Other than the above exceptions, the fills were placed as required by the specifications. All operations were performed under the direction and observed by St. Louis District (LMSED-FS) personnel and project personnel. A total of 60 field density/moisture tests was performed and 10 record samples were taken on which shear strength tests were performed by Waterways Experiment Station. Based on results of the above tests, inspection of trenches cut in the fills and observation of the performance of the roller, it was concluded by District personnel, with the concurrence of Division personnel, that six passes of the Caron wheel roller per lift would produce satisfactory results. A detailed report of the procedures, test results and conclusions are on file in the St. Louis District Office.

In general, after clays were spread to lift thickness, blended and the moisture content adjusted as needed, the material was compacted by six passes of the Caron wheel roller; however, towed rollers were used at various times. Generally compaction against the left abutment and the concrete structure was obtained by the use of rubber tired equipment. In those areas inaccessible to Caron Wheel rollers and rubber tired equipment, the embankment was placed in 4 inch thick loose lifts and was compacted with power hand tampers to a compaction equal to that obtained by the rollers.

Material that was too wet was spread, blended and permitted to dry, assisted by disking, until mositure content was within specified limits. When the material was too dry, water was sprinkled on the clays and disked until uniform distribution of mositure was obtained.

Equipment used for compaction and moisture control of impervious fill at various times and in various combination included the following:

Two (2) Rome 28-inch Disc Plows

Two (2) Rome 32-inch Disc Plows

Two (2) Rome 36-inch Disc Plows

One (1) Hyster Sheepsfoot Roller-towed

Two (2) Southwest Sheepsfoot Rollers towed

Two (2) CAT 825 Self-propelled Rollers with Caron Convertible Wheels

Three (3) CAT D8 Dozers

One (1) CAT 988 End Loader

Two (2) CAT 830 Tractors

One (1) International 4100 Tractor

One (1) Case 1740 Tractor

One (1) John Deere 8440 Tractor

Two (2) John Deere 8640 Tractors

One (1) John Deere 8850 Tractor

One (1) CAT 619 Waterwagon

One (1) CAT 630 Waterwagon

One (1) Euclid Waterwagon

(b) Previous Fill

Specifications required the Contractor to obtain an average relative density of 85% with no single value less than 80%. Also specified was that each layer of sand be kept in a saturated condition during rolling operations.

Obtaining the specified compaction was, at times, difficult. In an effort to alleviate this problem, different equipment was used for compaction and varied amounts of water were applied. When pervious fill started, a Hyster 250 vibratory roller was used but, because of heavy weight of the roller and the gradation of the sand, it was very difficult to use in confined areas. Dozers and track-type end loaders were used for compaction with some degree of success. In mid-season of 1980, the Contractor obtained a Raygo 410 self-propelled vibratory roller. For the duration of the remainder of pervious fill placement, the Raygo roller was the primary vehicle for sand compaction, supplemented with the Hyster 250 roller which was shown to be very successful in obtaining the specified compaction.

Equipment used in addition to the above described rollers, included a CAT D6 dozer (towed by Hyster roller) and waterwagon listed for impervious fill.

(c) Rock Fill

After spreading to the specified thickness, each lift was compacted by four passes of the Hyster 250 vibratory roller.

5. Construction Testing - Quality Assurance

(a) Impervious Soils

As the result of past experience gained at the Shelbyville Dam and construction of the Phase I embankment at the Clarence Cannon Dam, it appeared that correlation of field density and water content to Proctor density using the 3-point Proctor test was economical and produced better results than other methods available. A description of this correlation as used on this project is as follows:

Adjacent to each field density, additional soil was obtained to perform a 3-point Proctor test. A Proctor test was performed after adjustment of the water content of each of three points at approximately 2% increments. The curve thus obtained was used to determine the optimum water content and the maximum dry density. The curves derived from the 3-point Proctor tests were checked against a family of curves derived from standard Proctor tests performed during Phase I construction and the early stages of Phase II construction. The family of curves was updated as Phase II construction progressed. A standard Proctor test and a 3-point Proctor test were performed for comparison for one of each 20 field density tests performed or more often if deemed necessary. Approximately 2,317 field density tests (refer Note 1 at end of section) with moisture tests were performed on the impervious material for an average of one density test for approximately each 1,300 cubic yards of material placed. The in-place density of these materials was determined by the use of 4-inch diameter drive cylinders and the sand volume method. Drive cylinders were used for 31% and sand volume for 69% of tests performed. The moisture content

was determined by oven drying. Atterberg limits tests were performed on material from 1 of each 10 in-place density tests or more often as needed. Wash loss tests were performed in conjunction with Atterberg tests as needed for classification determination. Adjacent to each record sample obtained, an in-place density test was performed using the sand volume method. Enough material was then obtained to perform a 3-point Proctor test, a standard Proctor test, an Atterberg limits test and a wash loss test, if needed.

The original specifications for the main dam embankments required that the water content of the impervious soils would be within the limits of -2% to +1% of optimum. In order to obtain a better seal at the contact with the left abutment pseudo-core area and the concrete structure, the contract was modified to change the moisture requirements to 0% to +3% of optimum in approximate 6-foot wide areas adjacent to the contacts. Modifications Nos. P00118 and P00128 (Contract No. DACW43-73-C-0134) were issued 4 April 1980 and 25 November 1980, respectively, for this purpose. During the construction season of 1980, it was determined by District and Division personnel that, along the entire left abutment contact, 0% to +3% of optimum was preferred rather than -2% to +1% of optimum as required by specifications; however, the contract was not modified. Because of this, tests indicating a moisture content up to +3% of optimum were deemed acceptable. In an effort to expedite placement of clays in the water temperature control weir diversion notch and minimize the possibility of the river overtopping partially completed work, the contract was modified to change the moisture requirement from -2% to +1% of optimum to -2% to +2 1/2% of optimum. Two of 36 tests taken in the notch failed to meet

the moisture requirement (-2.1% and -2.5%). The area represented by the test indicating -2.5% moisture was removed.

Histograms and summary sheets representing moisture-density tests of materials accepted and finally left in place are included as part of this report as follows:

(1) Plates Nos. 9 and 10 are histograms and Plates Nos. 11 through 136 are summary sheets of tests taken from the primary dam embankment with the water temperature control weir but excluding the diversion notch and the left abutment and concrete structure contacts. Some 2,093 tests are represented. The histograms indicate that 91.5% of the samples were within the specified limits of -2% to +1% of optimum moisture content and 98.9% met the minimum desired compaction of 95% of standard Proctor.

(2) Plates Nos. 137 and 138 are histograms and Plates Nos. 139 through 144 are summary sheets representing 105 tests taken from the left abutment psuedo-core and concrete structure contacts. The histograms indicate that 84.0% of the samples were within the specified limits of 0% to +3% of optimum water content and that 94.8% of the samples met the minimum desired compaction of 95% of standard Proctor.

(3) Plates Nos. 145 and 146 are histograms and Plates Nos. 147 and 148 are summary sheets representing 32 tests taken from the saddle dam. The histograms indicate that 93% of the samples were within the specified limits of -2% to +1% of optimum and that all samples met the minimum desired compaction of 95% of standard Proctor.

A plot of Atterberg limits tests performed on materials after final processing and placement in the embankment is shown on Plate No. 149.

(b) Pervious Soil

Compaction control of cohesionless soils placed in the pervious fill was accomplished by the relative density method using a vibratory table to determine the maximum density. Before and during the early stages of construction, several minimum-maximum tests were performed. The minimum-maximum density and the gradation of the sand were found to be consistent based on the results of these tests. Because of the consistency of test results, field density was compared to the average of the previous minimum-maximum tests. However, as the construction progressed, it was found that accuracy was improved when field density tests were correlated to laboratory minimum-maximum density by the use of plots of the percent passing the No. 16 sieve versus laboratory minimum-maximum unit weights. These plots were checked and updated, as needed, as work progressed. Beginning in September 1978 and throughout the remainder of pervious fill placement, this method of correlation was employed.

Some 330 field density tests (refer Note 1 at end of section) and 258 sieve analyses were performed on the pervious fill for an average of one density test for approximately each 510 cubic yards and one sieve analysis for approximately each 650 cubic yards of material placed. The in-place density was determined by the sand volume method. The moisture content was determined by the hot plate method or the oven drying method. As stated in the original specifications, the average relative density shall be 85% or greater with no single value less than 80%. The average relative density for the pervious fill was 91.1%. As indicated by the histogram shown on Plate No. 15, 95% of all field densities were above the specified minimum limits of 80% relative density (Note 2). A summary of field density and sieve analysis is shown on Plates Nos. 151 thru 160.

Some 29 field density tests were performed on the sand and gravel backfill with a sieve analysis test and laboratory density test performed on each field density. The specifications stated that the average relative density shall be 85% or greater with no single value less than 80%. For the most part, compaction tests for this material were based on relative density using a vibratory table. However, due to relatively large amounts of silt in some samples making performance of relative density impractical, the standard Proctor test was used. It was then assumed that 95% of standard Proctor was acceptable.

(c) Filter B Material

Some 21 field density tests and 16 sieve analyses were performed on the Filter B material. Specifications stated that the average relative density shall be 85% or greater with no single value less than 80%. The control of compaction for materials used in Filter B layers was accomplished by the relative density method using a vibratory table to determine the maximum density. During early construction, several minimum-maximum tests were performed. The minimum-maximum density and the sieve analysis of the Filter B material were found to be consistent based on the results of these tests. Because of the consistency of test results, field density was compared to the average of previous minimum-maximum tests. The average minimum-maximum unit weights were checked and updated as construction progressed.

(d) Enlarged Upstream Berm

There were no test requirements for the pervious zone of the enlarged upstream berm; however, a limited number of classification tests was performed. Specifications limited the moisture in the impervious zone

clays to a maximum of +4% of optimum. Tests for moisture and classification were performed as needed to assure that materials as placed complied with speifications. No compaction tests were required.

(e) Record Sample Testing

A total of 236 undistrubed record samples were obtained from the Phase II impervious embankment fill. The record samples were shipped to the Lower Mississippi Valley Division Soils Laboratory at Waterways Experiment Station for testing. Testing included soil classification testing, pocket penetrometer readings, triaxial shear tests, consolidation tests and determination of permeability. Results of the record samples have been evaluated on a continual basis throughout construction utilizing computer plots. Approximately 90 percent of the record sample testing has been completed and the record sample strengths have been consistently greater than the design strengths. Upon receipt of the remaining record sample strengths, a final evaluation will be made and submitted as an addendum to this document.

6. Contractor Quality Control Testing

(a) Impervious Soils

As required by the original specifications, the Contractor performed one moisture determination test and one Atterberg Limits test for each 1,000 cubic yards placed until July 1978. At that time, the frequency requirement for Atterberg Limits tests was changed by Modification No. P00084 to one for each 3,000 cubic yards, as the result of the Contractor's value engineering change proposal. The frequency requirement for moisture tests was not changed. The Contractor complied with these requirements throughout the duration of construction. Testing performed by the Contractor was in accordance with applicable Corps of Engineers procedures.

In addition to tests described above, the Contractor was required to obtain 220 undisturbed block samples (refer Note 1 at end of section) of the compacted impervious fill material and deliver them to the Corps of Engineers for shipment to Waterways Experiment Station at Vicksburg, Mississippi.

(b) Pervious Soils

The Contractor performed one field density and one sieve analysis test for each 1,000 cubic yards of pervious fill placed. Method of correlation of the field density to relative density was the same as the method employed by the Corps of Engineers described in this section.

(c) Rock Fill

As part of the Contractor's quality control, a gradation test was performed on approximately each 20,000 tons of rock fill placed. These tests were performed by the Contractor and/or his supplier and witnesses by Corps of Engineers personnel. Based on test results, necessary corrections were made to assure compliance with contract requirements.

(d) Revetment

The Contractor was required by the specifications to perform a gradation test for each 10,000 tons of 100-, 150- and 300-pound top-size riprap and for each 20,000 tons of 400- and 900-pound top-size riprap. Tests were performed by the Contractor and/or his supplier and witnesses by Corps of Engineers personnel. Based on test results, necessary corrections were made to assure compliance with contract requirements.

NOTE 1: Field testing data (145 impervious fill density tests, 21 undisturbed block samples and 27 pervious fill density tests) pertaining to that portion of the embankment that was lost due to the July 1981 flood is not included in this report. Test data results for the replacement embankment materials are included in this report.

NOTE 2: Test data for pervious density tests taken prior to 1980 is not included in this report. A record of these tests is on file at the St. Louis District Office.

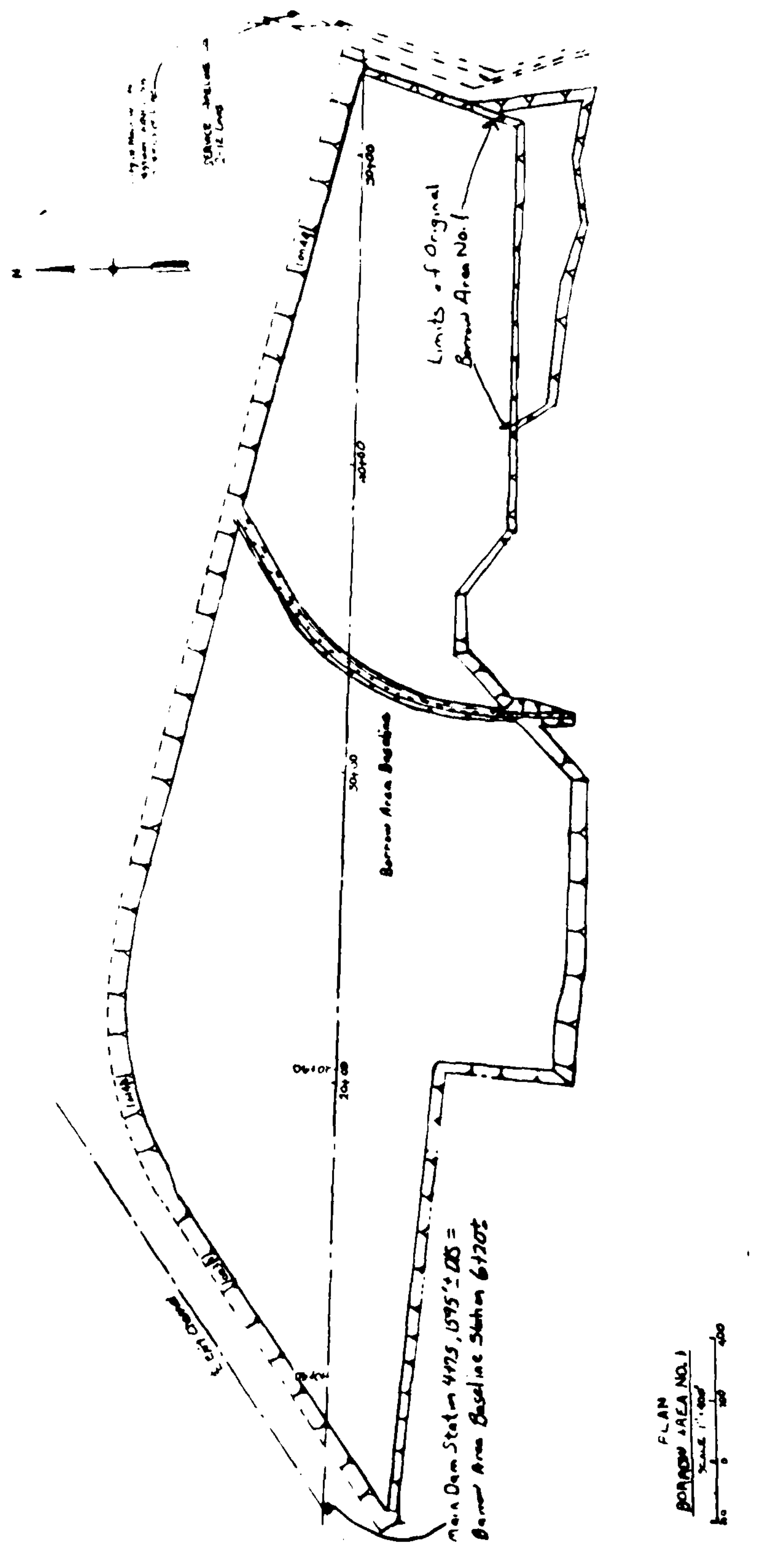
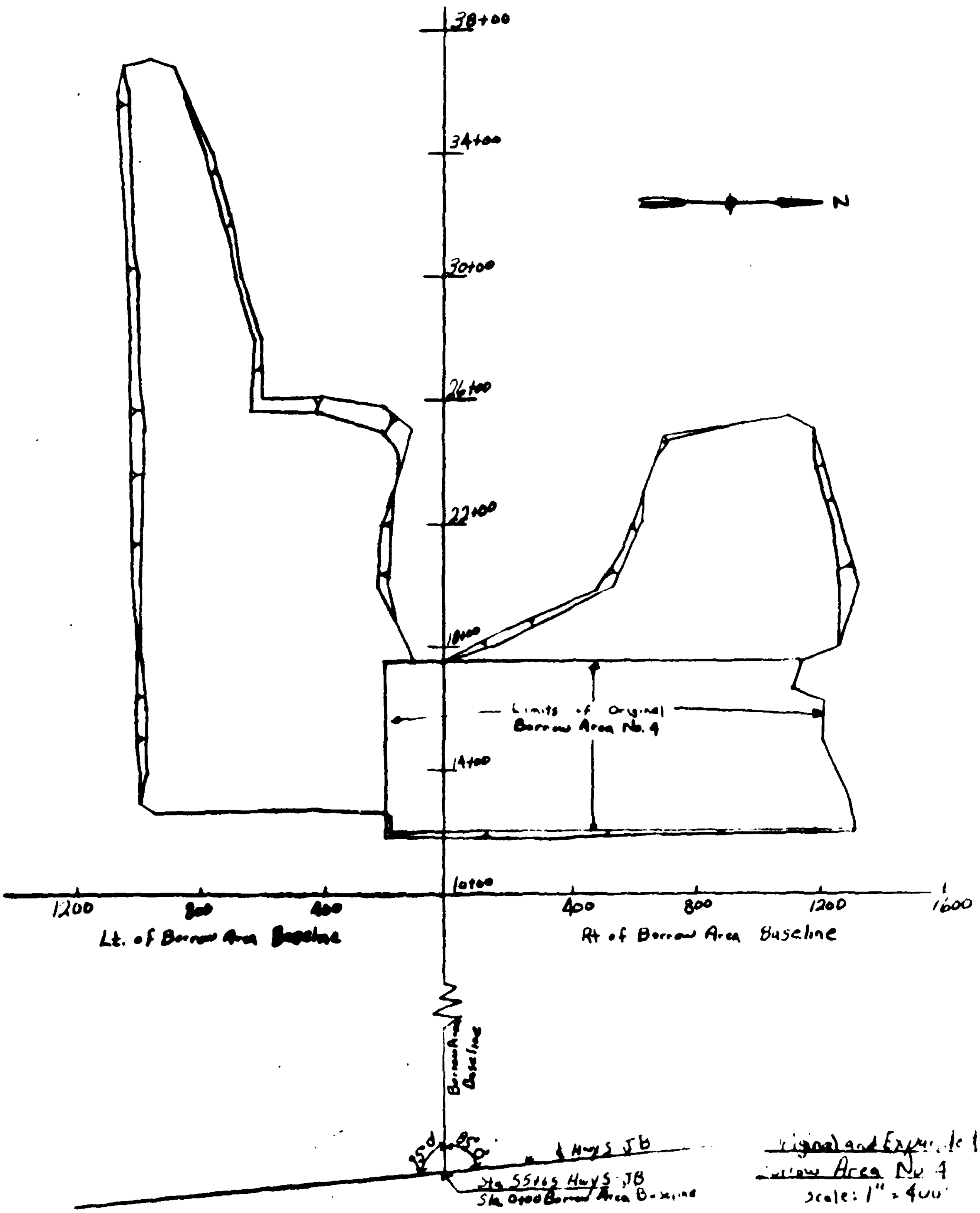

Limits of Original Borrow Area No. 1
Borrow Area Baseline
20+00
30+00
Main Dam Station 44+75, 1595'± D/S =
Borrow Area Baseline Station 6+20±
FLAN
BORROW AREA NO. 1

PLATE NO. 1



38+00
34+00
30+00
26+00
22+00
18+00
14+00
10+00
N
Limits of Original
Borrow Area No. 4
1200
800
400
400
800
1200
1600
Lt. of Borrow Area Baseline
Rt of Borrow Area Baseline
Borrow Area Baseline
Sta 55+65 Hwy S JB
Sta 0+00 Borrow Area Baseline
Area No 4
Scale: 1" = 400'

PLATE NO. 2

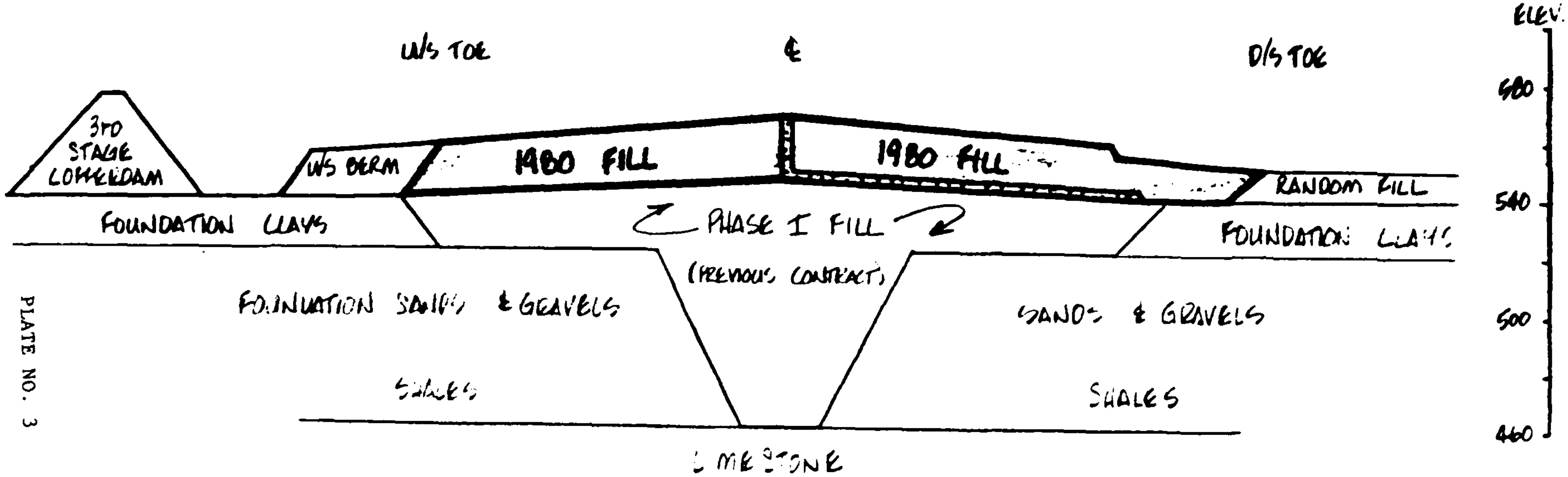


PLATE NO. 3

PLATE NO. 3

1980 FILL PLACEMENT "TOE TO TOE".
(REF SECTION 10.D.2)

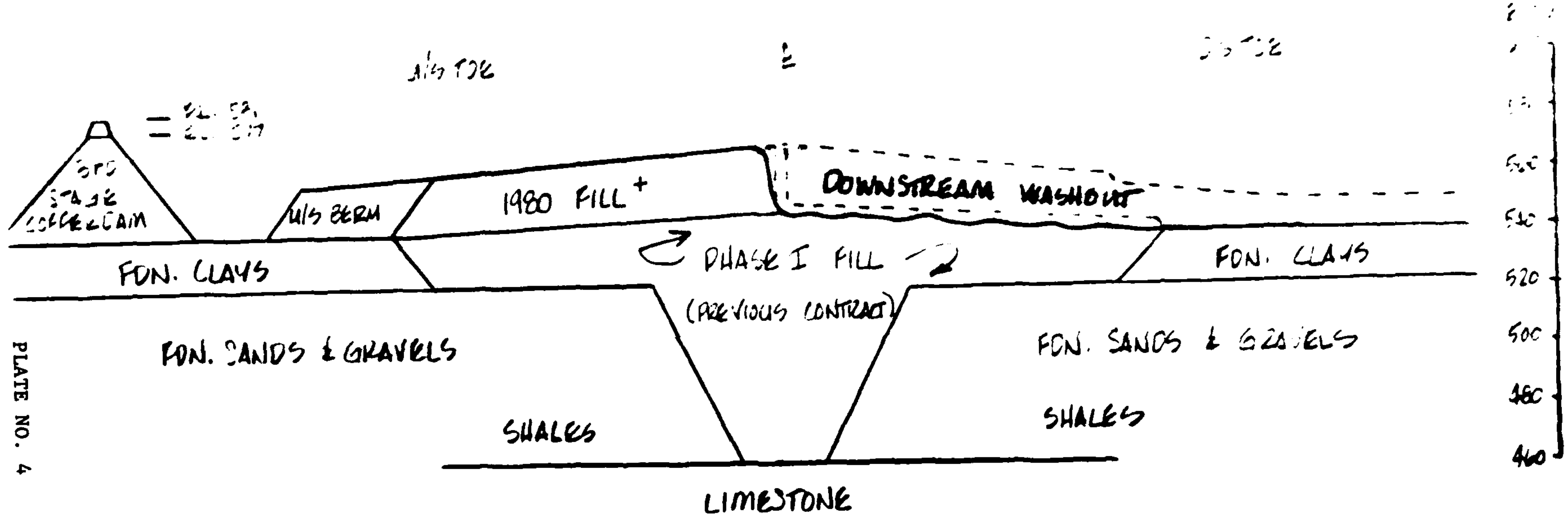


PLATE NO. 4 JULY 1981 FLOOD DAMAGE

WASHOUT OF DOWNSTREAM EMBANKMENT & DRAINS.
(REF. SECTION 10.0.3)

PLATE NO. 4

73-2-0132

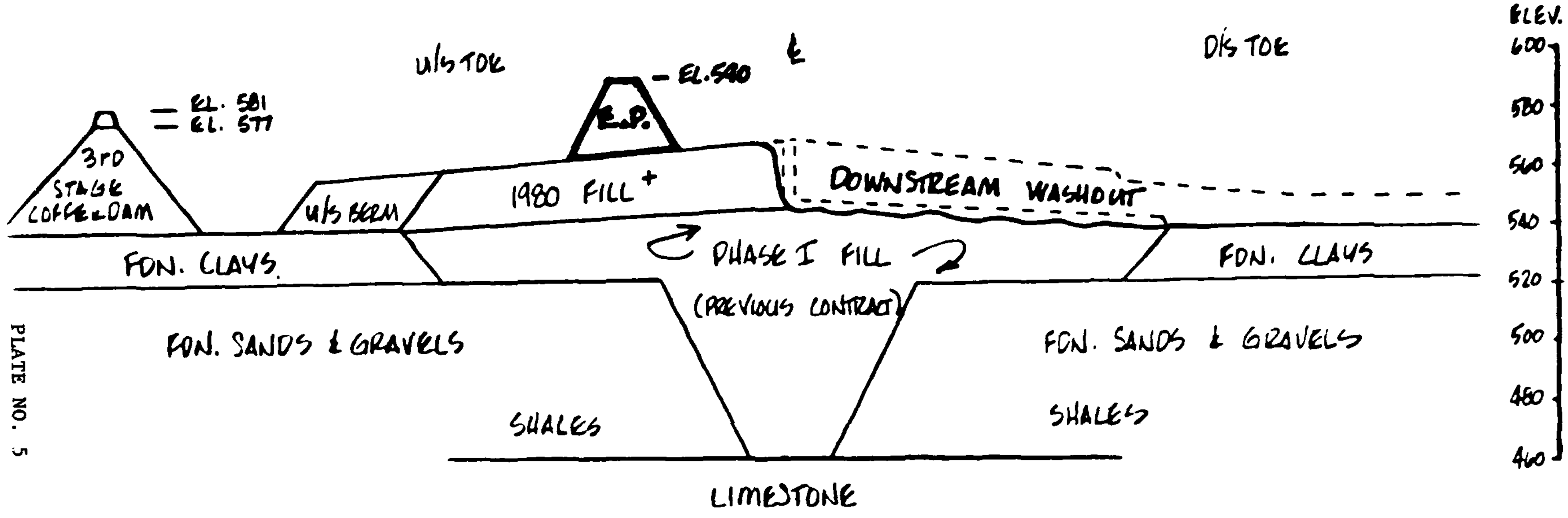


PLATE NO. 5 EMBANKMENT [illegible] SECTION

CONCURRENT WITH DOWNSTREAM [illegible] REPAIRS [illegible] (REF. SECTION 10.D.3)

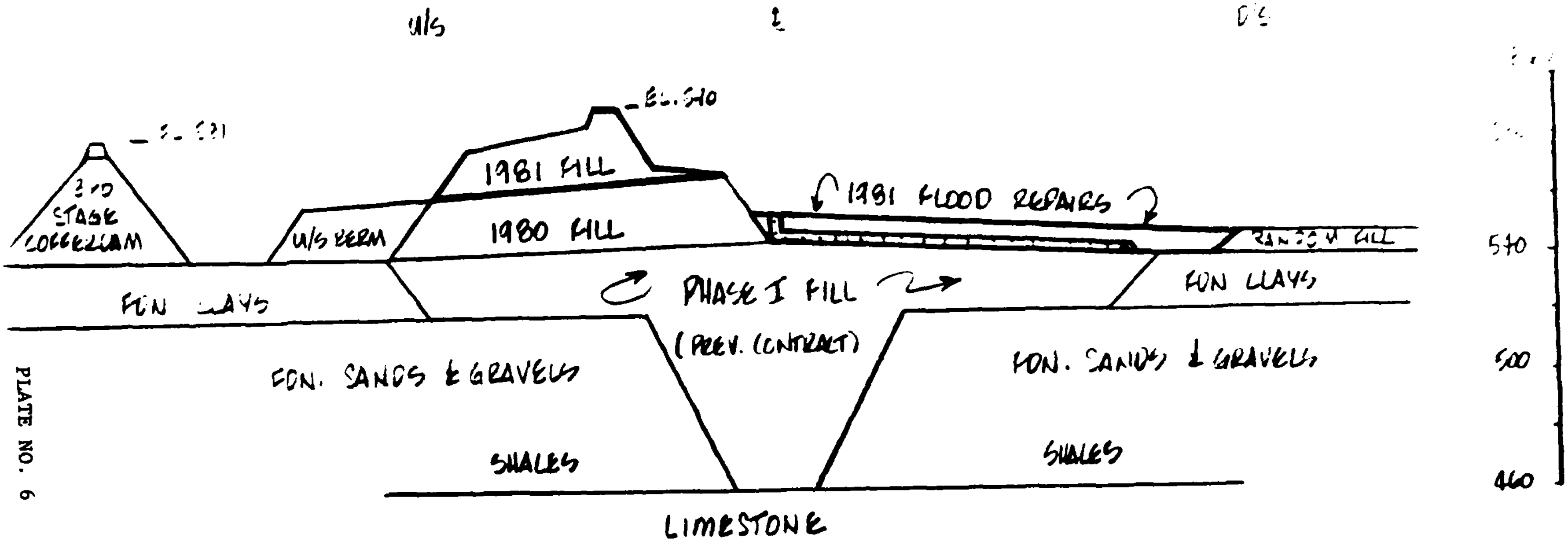


PLATE NO. 6 1981 POST FLOOD CONDITIONS

CONTRACTOR REPAIRED DOWNSTREAM SAND DRAINAGE BLANKET & CONCURRENTLY PLACED EP & CONTRACT FILL ON RESTRICTED WORK AREA UPSTREAM. NEAR END OF SEASON SAND BLANKET [illegible] ALSO COVERED WITH COMPACTED FILL UNDER FLOOD REPAIRS. (REF. SECTION 10.0.3)

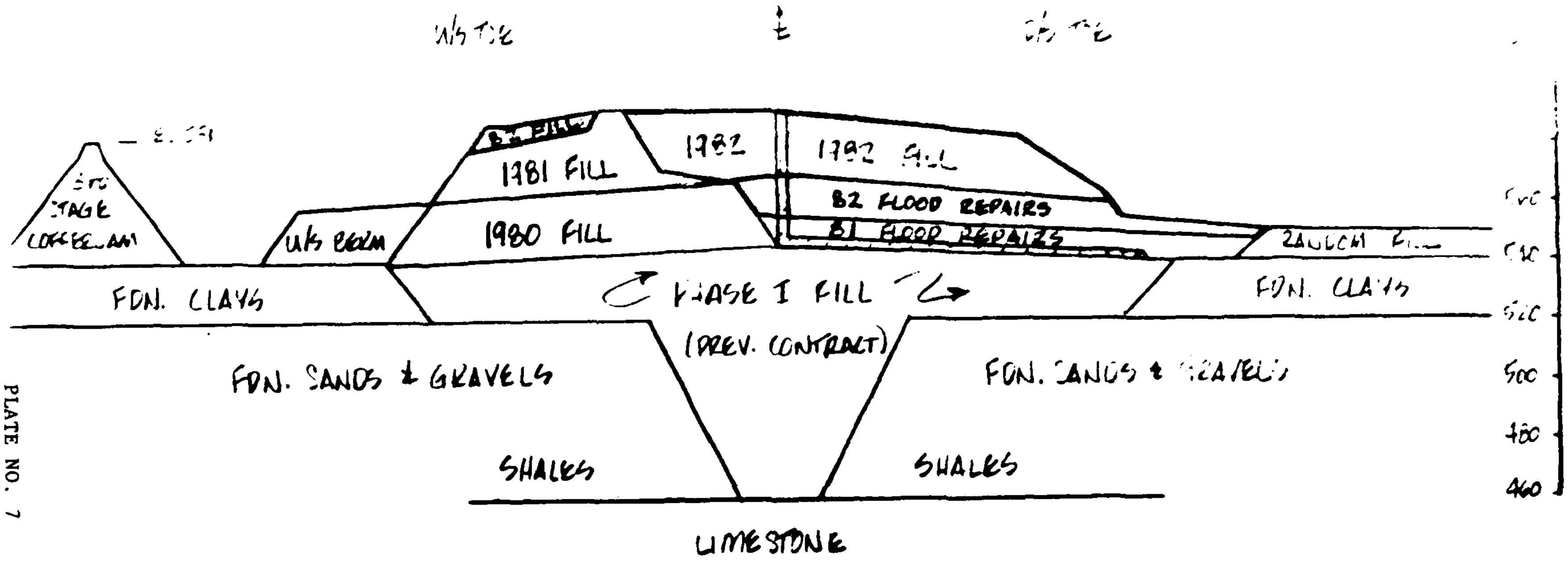


PLATE NO. 7 1982 SEASON

CONTRACTOR COMPLETED DOWNSTREAM FLOOD REPAIRS TO PREFLOOD SURFACE THEN CONTINUED CONTRACT FILL DOWNSTREAM OF ED IN RESTRICTED WORK AREA. SOME FILL ALSO PLACED UPSTREAM OF ED AT SEASONS END. (REF. SECTION 10.0.3)

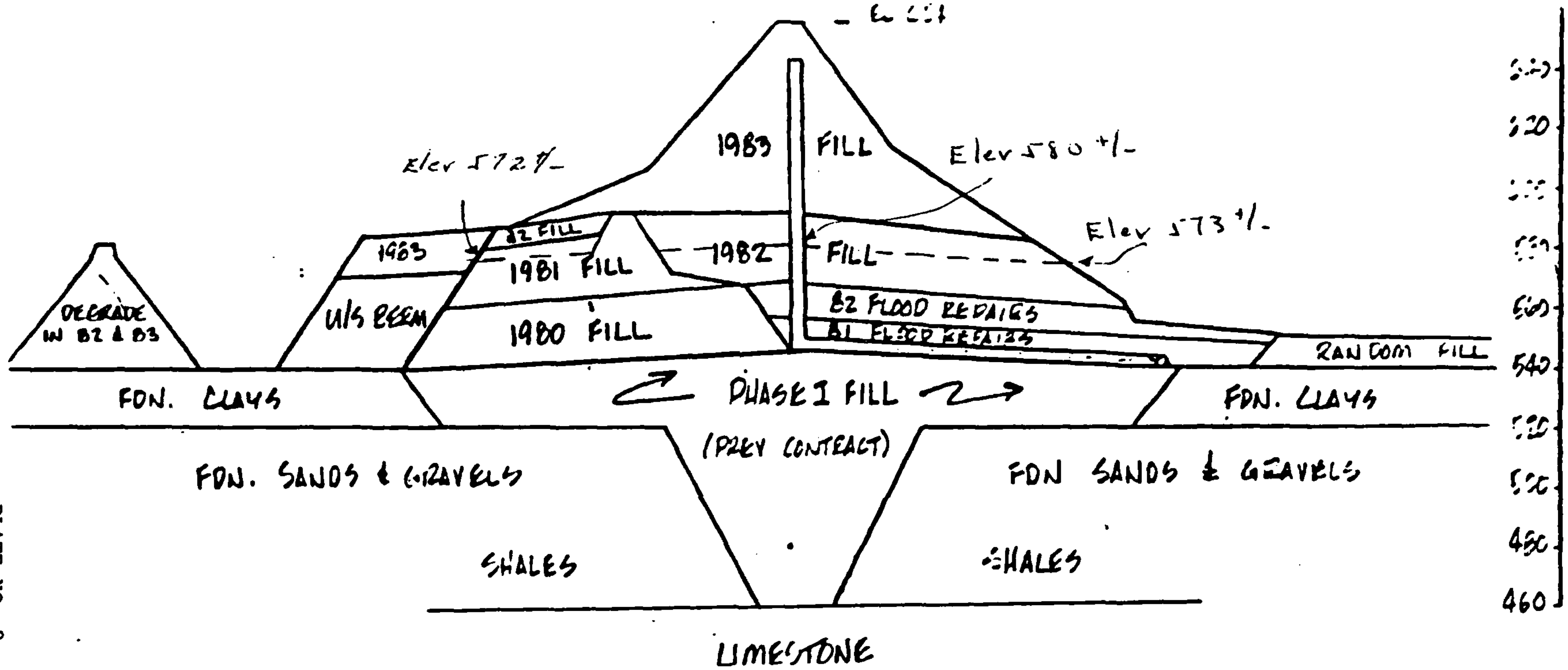


PLATE NO. 8 1983 CONSTRUCTION SEASON

THE MAIN DAM EMBANKMENT WAS TOPPED OUT AND CLOSURE WAS COMPLETED. (REF. SECTION 10.0.3)

Note: Dashed line represents the approximate lower limits of Borrow No. 4 material.

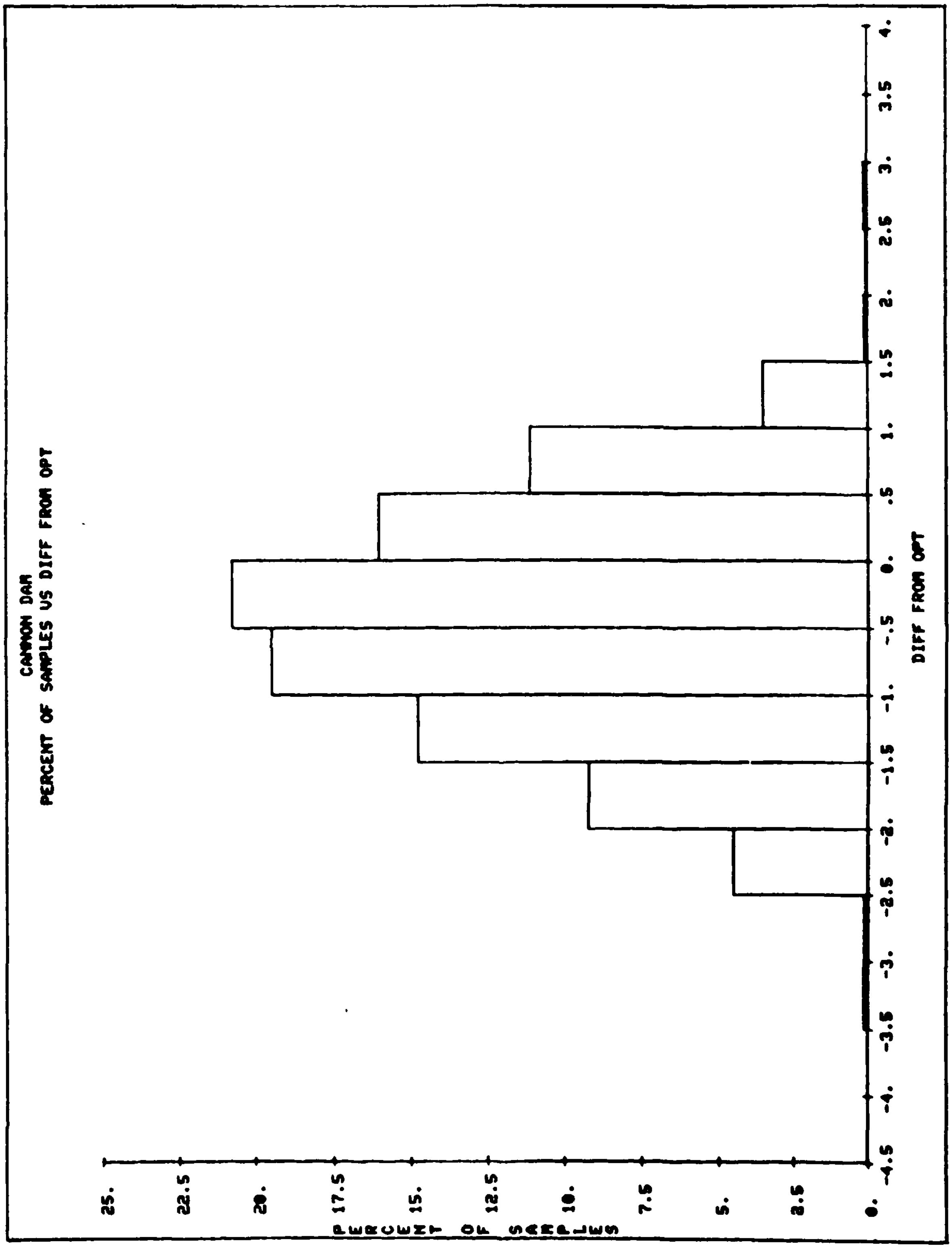

CANNON DAM
PERCENT OF SAMPLES VS DIFF FROM OPT
DIFF FROM OPT
PERCENT OF SAMPLES
-4.5 -4. -3.5 -3. -2.5 -2. -1.5 -1. -.5 0. .5 1. 1.5 2. 2.5 3. 3.5 4.
0. 2.5 5. 7.5 10. 12.5 15. 17.5 20. 22.5 25.

PLATE NO. 9

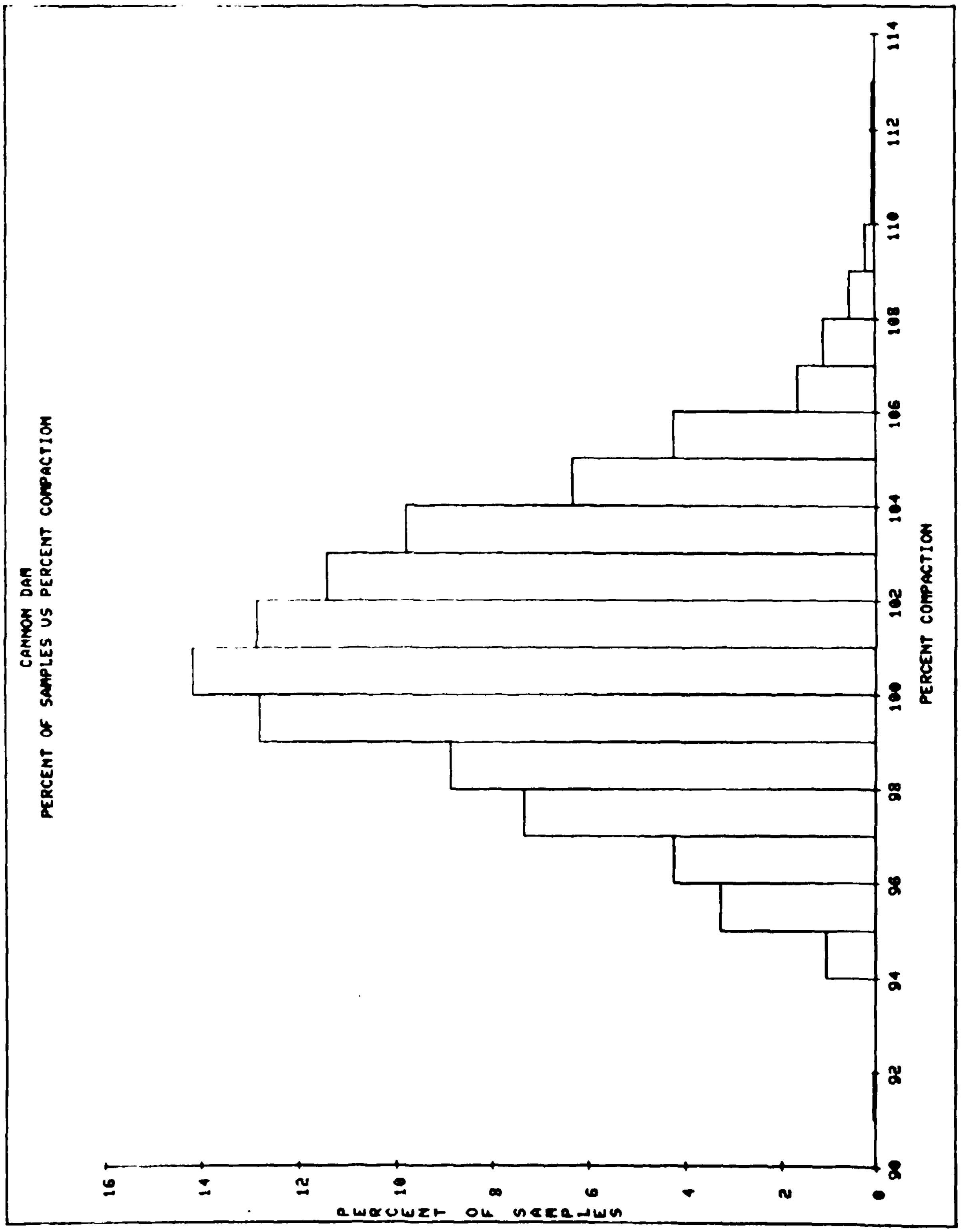

CANNON DAM
PERCENT OF SAMPLES VS PERCENT COMPACTION
PERCENT COMPACTION
PERCENT OF SAMPLES
0
2
4
6
8
10
12
14
16
90
92
94
96
98
100
102
104
106
108
110
112
114

PLATE NO. 10

ABBREVIATIONS USED ON MOISTURE/DENSITY SUMMARY SHEETS

C.S.	Concrete Structure
E.C.	End Cone Area
E. P.	Embankment Protection
F.L.R.	Flood Loss Replacement
H.C.	Hand Compaction (Mechanical Hand Tamper)
L. A.	Left Abutment
Rew. Lat.	Reworked at a later date
R-S	Record Sample
TR Area Aft. Fld.	Tailrace Area After Flooding
U, Mat. Rem.	Unsatisfactory, Material Removed
U, No Act.	Unsatisfactory, No Action Taken
U, Rew.	Unsatisfactory, Reworked
U-R	Unsatisfactory, Reworked and Retested
Ret. 000H	Retest of #000
SD	Saddle Dam
CT	Upstream Cutoff Trench and Water Temperature Control Weir
SB	Structural Backfill

PROJECT- Cannon Dam	RIVER- Salt	STATE- Missouri	TOWN-	CONTRACT NO.- DACW43-73-C-0134	CONTRACTOR- Massman Const. Co.	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
CT-1	7- 1-74	4+50	395U	511.00	6	CL(E)			T	102.2	15.8	3	110.7	16.2	-.4	92.3	U-R,REW.
CT-2	7- 1-74	5+50	395U	511.00	6	CL(E)			T	108.8	16.4	3	111.3	16.4	0.0	97.8	
CT-3	7- 2-74	3+50	400U	512.00	6	CL(E)			T	118.2	13.6	3	109.3	16.2	-2.6	108.1	U-R,REW.
CT-4	7- 2-74	7+ 0	400U	512.00	6	CL(E)			T	100.7	15.0	3	110.5	16.2	-1.2	91.1	U-R, CT-5
CT-5	7- 2-74	6+80	400U	512.00	6	CL(E)			T	108.7	16.2	3	108.5	17.0	-.8	100.2	RETEST CT-4
CT-6	7- 2-74	5+50	395U	514.00	6	CL(E)			T	110.1	17.2	3	108.9	16.8	.4	101.1	
CT-7	7- 3-74	6+35	400U	517.00	6	CL(E)			T	113.1	16.0	3	113.5	15.2	.8	99.6	
CT-8	7- 3-74	7+25	415U	519.00	6	CL(E)			T	114.8	16.0	3	113.5	15.2	.8	101.1	
CT-10	7- 6-74	7+25	400U	521.50	6	CL(E)			T	122.1	15.6	3	110.0	16.8	-1.2	111.0	
CT-11	7- 6-74	4+25	395U	522.00	6	CL(E)			T	106.8	15.3	3	111.0	16.2	-.9	96.2	
CT-9	7- 6-74	4+75	375U	521.00	6	CL(E)			T	117.5	15.7	3	109.4	16.6	-.9	107.4	
CT-12	7- 8-74	2+75	400U	520.00	6	CL(E)			T	111.8	14.7	3	113.6	15.0	-.3	98.4	
CT-13	7- 9-74	5+ 0	380U	523.00	6	CL(E)			T	112.1	15.6	3	110.7	16.2	-.6	101.3	
CT-14	7- 9-74	5+70	380U	523.00	6	CL(E)			T	112.5	14.3	3	109.7	16.2	-1.9	102.6	
CT-15	7- 9-74	3+ 0	400U	524.00	6	CL(E)			T	117.1	14.9	3	111.3	16.0	-1.1	105.2	
CT-16	7- 9-74	4+ 0	380U	524.00	6	CL(E)			T	111.7	15.2	3	109.7	16.2	-1.0	101.8	
CT-17	7-10-74	5+50	400U	525.00	6	CL(E)			T	113.3	17.4	3	111.8	16.6	.8	101.3	
CT-18	7-10-74	8+20	370U	525.00	6	CL(E)			T	107.1	17.6	3	109.8	17.4	.2	97.5	
CT-19	7-11-74	7+82	430U	524.00	6	CL(E)			T	109.5	18.5	3	110.0	17.4	1.1	99.5	U-NO ACTION
CT-20	7-11-74	6+80	370U	524.00	6	CL(E)			T	109.4	18.3	3	110.6	17.2	1.1	98.9	U-NO ACTION

PROJECT-				RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-21	7-11-74	6+ 0	440W	526.00	6	CL(E)			T	109.6	16.7	3	110.0	16.5	.2	99.6	
CT-22	7-11-74	5+ 0	400W	526.00	6	CL(E)			T	113.2	15.2	3	110.9	15.8	-.6	102.1	
CT-23	7-12-74	6+60	445W	527.50	6	CL(E)			T	110.7	14.1	3	115.2	13.9	.2	96.1	
CT-24	7-12-74	4+50	385W	527.50	6	CL(E)			T	110.1	17.0	3	110.4	15.9	1.1	99.7	U-NO ACTION
CT-25	7-12-74	6+55	445W	527.50	6	CL	33	18	T	108.2	16.2	3	113.0	15.0	1.2	95.8	U-NO ACTION
CT-26	7-13-74	9+ 0	460W	534.00	6	CL(E)			T	106.8	18.3	3	112.6	17.3	1.0	94.8	U-NO ACTION
CT-27	7-13-74	6+ 0	355W	529.00	6	CL(E)			T	110.6	17.4	3	111.3	16.4	1.0	99.4	
CT-28	7-18-74	6+ 0	435W	528.00	6	CL(E)			T	103.7	17.1	3	109.2	16.6	.5	95.0	
CT-29	7-18-74	6+ 0	440W	528.00	6	CL(E)			T	108.1	19.0	3	107.6	18.0	1.0	100.5	
CT-30	7-18-74	8+50	330W	535.00	6	CL	41	25	T	97.7	17.1	3	108.5	16.6	.5	90.0	U-R CT-32
CT-31	7-18-74	9+ 0	400W	535.00	6	CL(E)			T	112.4	14.9	3	116.2	14.1	.8	96.7	
CT-32	7-18-74	8+50	330W	535.00	6	CL	41	25	T	113.4	16.0	3	107.7	17.0	-1.0	105.3	RETEST CT-30
CT-33	7-19-74	7+50	450W	536.00	6	CL(E)			T	105.0	16.9	3	109.2	16.5	.4	96.2	
CT-34	7-19-74	5+50	440W	528.00	6	CL(E)			T	106.2	16.6	3	109.4	16.2	.4	97.1	
CT-35	7-19-74	8+50	460W	539.00	6	CL	37	22	T	113.6	14.4	3	111.1	15.0	-.6	102.3	
CT-38	7-20-74	8+ 0	350W	538.00	6	CL(E)			T	106.8	19.5	3	109.0	18.4	1.1	98.0	U-NO ACTION
CT-39	7-20-74	8+25	390W	538.00	6	CL(E)			T	116.3	12.9	3	113.8	15.[illegible]	-2.2	102.2	U-NO ACTION
CT-40	7-20-74	8+ 5	400W	538.00	6	CL	39	23	T	114.0	12.6	3	112.3	15.8	-3.2	101.5	U-R,REV.
CT-40	7-20-74	8+ 5	400W	538.00	6	CL	39	23	T	114.0	12.6	5	113.2	14.6	-2.0	100.7	
CT-41	7-23-74	8+ 0	400W	540.00	6	CL(E)			T	112.7	14.7	3	109.9	16.5	-1.8	102.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
CT-42	7-23-74	8+80	375U	540.00	6	CL(E)			T	120.0	12.1	3	113.2	15.0	-2.9	106.0	U-R,REW.
CT-43	7-23-74	7+ 0	425U	539.00	6	CL(E)			T	110.4	15.2	3	111.3	15.8	-.6	99.2	
CT-44	7-24-74	8+60	370U	540.00	6	CL(E)			T	116.7	13.1	3	112.2	15.1	-2.0	104.0	
CT-45	7-24-74	9+ 0	360U	541.00	6	CL	38	23	T	100.5	14.6	3	114.2	15.1	-.5	88.0	U-R,CT-47
CT-46	7-24-74	8+20	380U	540.00	6	CL(E)			T	117.5	13.7	3	114.2	15.1	-1.4	102.9	
CT-47	7-24-74	9+ 0	360U	541.00	6	CL(E)	38	23	T	116.0	15.2	3	112.0	15.1	.1	103.6	RET. CT-44
CT-48	7-25-74	5+ 0	400U	530.00	6	CL(E)			T	110.5	15.6	3	113.3	15.1	.5	97.5	
CT-49	7-25-74	5+50	455U	532.00	6	CL(E)			T	111.3	15.4	3	114.4	14.3	1.1	97.3	U-NO ACTION
CT-50	7-25-74	6+25	360U	536.00	6	CL	34	20	T	110.2	14.2	3	114.9	14.3	-.1	95.9	
CT-51	10- 2-74	4+80	400U	546.00	6	CL(E)			T	114.3	15.3	3	114.7	14.7	.6	99.7	
CT-52	10- 4-74	5+ 0	430U	530.00	6	CL(E)			T	115.9	16.2	3	112.9	16.1	.1	102.7	
CT-53	10- 4-74	3+50	375U	531.00	6	CL(E)			T	111.7	16.0	3	113.6	15.2	.8	98.3	
CT-54	10- 4-74	1+75	445U	531.00	6	CL(E)			T	116.7	15.6	3	113.5	15.0	.6	102.8	
CT-55	7-14-75	4+90	308U	527.00	6	CL	34	17	T	109.3	14.9	3	111.1	16.2	-1.3	98.4	
CT-56	7-14-75	3+87	290U	527.00	6	CL(E)			T	114.5	15.8	3	112.4	15.7	.1	101.9	
CT-57	7-14-75	5+45	288U	529.00	6	CL(E)			T	105.9	15.3	3	114.9	14.9	.4	92.2	U-R,RER.
CT-58	7-15-75	5+75	258U	530.00	6	CL(E)			T	114.9	15.8	3	114.5	14.2	1.6	100.3	U-R,REW.
CT-59	7-15-75	4+40	269U	531.00	6	CL(E)			T	110.2	14.8	3	113.8	15.2	-.4	96.8	
CT-60	7-15-75	6+ 5	340U	537.00	6	CL	31	15	T	113.3	18.5	3	111.6	16.6	1.9	101.5	U-R,MAT. REM.
CT-61	7-15-75	3+85	343U	534.00	6	CL(E)			T	107.4	17.6	3	114.7	14.6	3.0	93.6	U-R,MAT. REM.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-62	7-16-75	4+55	480U	531.00	6	CL(E)			T	111.5	13.9	3	112.7	14.9	-1.0	98.9	
RS-278	7-16-75	5+ 0	250U	530.00	18	CL	31	14	T	117.8	13.8	5	113.0	15.2	-1.4	104.2	R-S
CT-63	7-17-75	2+90	472U	528.00	6	CL(E)			T	118.8	13.4	3	114.9	14.0	-.6	103.4	
CT-64	7-17-75	2+15	400U	530.00	6	CL(E)			T	112.2	16.2	3	114.4	14.5	1.7	98.1	U-R CT-64A
RS-275	7-17-75	4+ 0	500U	530.00	18	CL-ML	23	7	T	116.2	14.7	5	113.7	14.2	.5	102.2	R-S
CT-65	7-18-75	4+25	525U	531.00	6	CL	33	17	T	116.8	11.7	3	115.6	13.6	-1.9	101.0	
CT-66	7-18-75	5+40	325U	534.00	6	CL(E)			T	110.3	12.2	3	116.5	13.5	-1.3	94.7	U-NO ACTION
CT-64A	7-21-75	2+15	400U	530.00	6	CL(E)			T	117.7	13.2	3	114.4	14.3	-1.1	102.9	RETEST CT-64
CT-67	7-21-75	2+60	481U	531.00	6	CL(E)			T	110.6	13.3	3	116.4	13.4	-.1	95.0	
CT-68	7-21-75	4+65	516U	532.00	6	CL(E)			T	109.3	15.2	3	114.9	14.1	1.1	95.1	
CT-69	7-21-75	5+25	304U	534.00	6	CL(E)			T	102.2	10.8	3	113.5	15.2	-4.4	90.0	U-R,MAT. REM.
CT-69A	7-22-75	5+25	304U	534.00	6	CL(E)			T	113.1	14.8	3	113.2	13.8	1.0	99.9	RET. CT-69
CT-70	7-22-75	4+35	292U	533.00	6	CL	37	22	T	107.8	16.1	5	111.8	15.2	.9	96.4	
CT-71	7-22-75	4+65	355U	534.00	6	CL(E)			T	108.9	15.9	3	112.8	14.9	1.0	96.5	
CT-72	7-23-75	5+86	310U	536.00	6	CL(E)			T	107.7	15.5	3	113.2	14.9	.6	95.1	
CT-73	7-23-75	2+95	334U	534.00	6	CL(E)			T	111.6	15.3	3	114.1	14.4	.9	97.8	
CT-74	7-23-75	3+33	410U	533.00	6	CL(E)			T	115.5	15.1	3	113.5	15.3	-.2	101.8	
CT-75	7-23-75	4+35	512U	534.00	6	CL	35	20	T	117.8	14.7	3	113.1	15.1	-.4	104.2	
CT-76	7-23-75	4+63	424U	535.00	6	CL(E)			T	103.7	15.2	3	113.2	14.9	.3	91.6	U-R CT-76A
CT-77	7-24-75	6+51	322U	541.00	6	CL(E)			T	116.7	14.8	3	114.0	14.9	-.1	102.4	

PROJECT-		RIVER-			STATE-				TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-78	7-24-75	3+15	292U	535.00	6	CL(E)			T	110.4	15.5	3	113.4	15.1	.4	97.4	
CT-79	7-25-75	7+50	329U	542.00	6	CL(E)			T	112.3	16.2	3	112.7	15.5	.7	99.6	
CT-80	7-25-75	5+15	370U	539.00	6	CL	32	17	T	113.3	15.9	5	113.0	14.8	1.1	100.3	U-NO ACTION
CT-81	7-28-75	5+84	325U	540.00	6	CL(E)			T	108.3	16.3	3	112.5	16.2	.1	96.3	
CT-82	7-28-75	6+45	330U	541.00	6	CL(E)			T	114.0	14.6	3	113.5	15.2	-.6	100.4	
CT-83	7-28-75	4+70	400U	539.00	6	CL(E)			T	114.9	14.4	3	113.3	14.7	-.3	101.4	
CT-84	7-28-75	5+40	445U	540.00	6	CL(E)			T	116.1	14.7	3	113.9	14.6	.1	101.9	
CT-85	7-29-75	5+35	410U	541.00	6	CL	34	19	T	109.1	14.8	3	113.7	14.3	.5	96.0	
CT-86	7-29-75	4+31	520U	537.00	6	CL(E)			T	112.9	14.3	3	112.3	15.3	-1.0	100.5	
CT-87	7-29-75	5+94	300U	541.00	6	CL(E)			T	114.5	15.6	3	113.7	14.7	.9	100.7	
CT-88	7-30-75	4+98	474U	539.00	6	CL(E)			T	113.0	14.4	3	113.4	15.4	-1.0	99.6	
CT-89	7-30-75	6+ 0	280U	541.00	6	CL(E)			T	113.1	13.4	3	114.5	14.2	-.8	98.8	
RS-281	7-30-75	6+ 0	300U	540.00	18	CL	36	21	T	118.2	14.3	5	113.7	15.0	-.7	104.0	R-S
RS-282	7-30-75	6+ 0	450U	540.00	18	CL	36	19	T	113.3	15.8	5	111.8	16.2	-.4	101.3	R-S
CT-90	7-31-75	3+10	400U	539.00	6	CL	36	21	T	109.8	14.0	3	114.1	14.5	-.5	96.2	
CT-91	7-31-75	7+54	370U	543.00	6	CL(E)			T	114.5	13.1	3	112.3	15.1	-2.0	102.0	
RS-276	7-31-75	4+ 0	350U	540.00	18	CL	35	19	T	114.9	16.1	5	113.0	15.2	.9	101.7	R-S
RS-279	7-31-75	5+ 0	480U	540.00	18	CL	36	22	T	115.9	14.8	5	113.8	14.7	.1	101.8	R-S
CT-92	8- 1-75	5+ 0	458U	540.00	6	CL(E)			T	119.3	15.3	3	112.1	15.7	-.4	106.4	
CT-93	8- 1-75	8+11	300U	542.00	6	CL(E)			T	109.3	18.0	3	111.3	16.7	1.3	98.2	U-NO ACTION

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
CT-94	8- 4-75	8+40	310U	542.00	6	CL(E)			T	115.0	15.1	3	111.6	15.9	-.8	103.0	
CT-95	8- 4-75	5+77	325U	543.00	6	CL	34	18	T	109.6	13.4	3	113.0	14.6	-1.2	97.0	
CT-96	8- 5-75	4+40	409U	538.00	6	CL(E)			T	119.3	13.4	3	112.9	15.4	-2.0	105.7	
CT-97	8- 5-75	5+ 0	292U	542.00	6	CL(E)			T	115.1	13.9	3	114.3	14.9	-1.0	100.7	
CT-98	8- 6-75	9+10	340U	543.00	6	CL(E)			T	116.3	14.4	3	114.2	15.9	-1.5	101.8	
CT-99	8- 6-75	6+20	432U	543.00	6	CL(E)			T	113.6	15.8	3	113.3	15.9	-.1	100.3	
CT-100	8- 7-75	3+94	485U	539.00	6	CL	32	17	T	116.7	14.0	5	114.3	14.7	-.7	102.1	
CT-101	8- 7-75	5+ 0	515U	539.00	6	CL(E)			T	116.9	13.9	3	113.3	14.0	-.1	103.2	
CT-102	8- 7-75	5+50	467U	543.00	6	CL(E)			T	114.1	16.4	3	116.3	14.9	1.5	98.1	U-R CT-102A
CT102A	8- 8-75	5+50	467U	543.00	6	CL(E)			T	115.0	13.2	3	112.8	14.8	-1.6	102.0	RETEST
CT-103	8- 8-75	7+41	483U	544.00	6	CL(E)			T	112.3	16.7	3	112.3	15.8	.9	100.0	
CT-104	8- 8-75	6+18	476U	544.00	8	CL(E)			T	113.9	13.4	3	113.8	14.7	-1.3	100.1	
CT106	8-11-75	8+ 5	462U	546.00	6	CL(E)			T	112.5	14.5	3	113.6	14.8	-.3	99.0	
CT-105	8-11-75	9+75	492U	545.00	6	CL	33	18	T	115.6	13.9	3	115.5	13.9	0.0	100.1	
CT-107	8-13-75	6+75	400U	545.00	6	CL(E)			T	119.1	14.5	3	114.5	14.7	-.2	104.0	
CT-108	8-13-75	3+50	433U	541.00	6	CL(E)			T	118.3	13.0	3	116.0	14.2	-1.2	102.0	
CT-109	8-19-75	7+29	335U	547.00	6	CL(E)			T	111.7	14.8	3	114.0	14.7	.1	98.0	
CT-110	8-19-75	7+60	365U	548.00	6	CL	32	16	T	118.2	13.2	5	114.1	15.0	-1.8	103.6	
CT-111	8-19-75	5+39	365U	547.00	6	CL(E)			T	114.9	15.0	3	114.5	14.4	.6	100.3	
RS-285	8-19-75	8+ 0	400U	545.00	18	CL	30	14	T	118.5	14.0	5	115.3	14.2	-.2	102.8	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
CT-112	8-20-75	10+ 0	425U	548.00	6	CL(E)			T	115.8	16.1	3	112.7	15.7	.4	102.8	
CT-113	8-20-75	4+40	465U	547.00	6	CL(E)			T	111.9	16.3	3	110.5	16.1	.2	101.3	
CT-114	8-21-75	7+80	468U	549.00	6	CL(E)			T	112.8	13.0	3	113.5	14.8	-1.8	99.4	
CT-115	8-21-75	7+26	373U	550.00	6	CL	31	16	T	116.6	15.0	3	115.8	14.2	.8	100.7	
CT-116	8-21-75	10+69	355U	549.00	6	CL(E)			T	114.2	14.4	3	113.0	15.4	-1.0	101.1	
CT-117	8-21-75	1+75	403U	547.00	6	CL(E)			T	104.1	13.5	3	114.0	14.0	-.5	91.3	U-R CT-117A
CT-118	8-21-75	9+ 0	478U	548.00	6	CL(E)			T	117.0	13.8	3	113.0	13.7	.1	103.5	
CT117A	8-22-75	1+75	403U	547.00	6	CL(E)			T	114.4	14.2	3	115.7	14.5	-.3	98.9	RET. CT-117
CT-119	8-22-75	12+25	200U	539.00	6	CL(E)			T	111.0	14.1	3	112.3	15.1	-1.0	98.8	
CT-120	8-22-75	11+24	274U	540.00	6	CL	31	16	T	117.8	14.8	3	115.3	14.7	.1	102.2	
CT-121	8-22-75	8+76	400U	550.00	6	CL(E)			T	106.3	13.6	3	114.9	14.2	-.6	92.5	U-R,REW.
CT-122	8-22-75	3+80	370U	549.00	6	CL(E)			T	110.3	13.9	3	115.0	14.0	-.1	95.9	
RS-284	8-27-75	7+ 0	300U	550.00	18	CL	29	14	T	112.8	12.3	5	115.9	14.0	-1.7	97.3	R-S
CT-123	9- 3-75	8+39	465U	550.00	6	CL(E)			T	112.4	17.0	3	110.0	16.8	.2	102.2	
CT-124	9- 3-75	6+62	426U	552.00	6	CL(E)			T	112.0	13.7	3	115.0	14.4	-.7	97.4	
CT-125	9- 3-75	5+85	381U	552.00	6	CL(E)			T	114.9	16.4	3	114.3	14.8	1.6	100.5	U-R,REW.
CT-126	9- 3-75	9+11	355U	542.00	6	CL(E)			T	106.8	15.8	3	114.3	14.8	1.0	93.4	U-R,RER.
CT-127	9- 4-75	8+73	340U	552.00	6	CL(E)			T	110.8	15.8	3	112.9	14.9	.9	98.1	
CT-128	9- 4-75	7+ 8	330U	553.00	6	CL(E)			T	113.3	15.0	3	110.6	15.8	-.8	102.4	
CT-129	9- 4-75	10+35	350U	544.00	6	CL(E)			T	109.5	15.2	3	115.1	14.5	.7	95.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
CT-130	9- 7-75	10+30	380W	542.00	6	CL	32	15	T	112.6	14.3	5	112.9	14.8	-.5	99.7	
CT-131	9- 8-75	11+95	360W	545.00	6	CL(E)			T	113.3	12.4	3	114.0	14.4	-2.0	99.4	
CT-132	9- 8-75	5+65	472W	553.00	6	CL(E)			T	112.8	13.9	3	115.2	14.1	-.2	97.9	
CT-133	9- 9-75	8+ 7	325W	552.00	6	CL(E)			T	114.0	13.0	3	113.9	14.4	-1.4	100.1	
CT-134	9- 9-75	5+52	448W	554.00	6	CL(E)			T	113.0	15.0	3	111.2	14.9	.1	101.6	
CT-135	9- 9-75	9+50	417W	554.00	6	CL(E)			T	113.9	15.4	3	110.5	16.3	-.9	103.1	
CT-136	9-10-75	10+55	350W	544.00	6	CL(E)			T	111.8	15.2	3	112.0	15.8	-.6	99.8	
CT-137	9-10-75	13+ 0	280W	543.00	6	CL(E)			T	113.5	15.8	3	112.9	15.6	.2	100.5	
CT-138	9-18-75	10+85	400W	542.00	6	CL(E)			T	108.1	18.4	3	108.8	17.2	1.2	99.4	U-NO ACTION
CT-139	9-24-75	1+84	408W	550.00	6	CL(E)			T	116.7	14.1	3	113.2	15.0	-.9	103.1	
CT-140	9-24-75	3+45	394W	551.00	6	CL	32	13	T	114.5	15.2	5	112.4	16.0	-.8	101.9	
CT-141	9-24-75	11+17	330W	544.00	6	CL(E)			T	105.0	14.9	3	111.7	15.2	-.3	94.0	U-R,REW.
CT-142	9-25-75	12+88	208W	548.00	6	CL(E)			T	111.5	14.2	3	113.0	15.1	-.9	98.7	
CT-143	9-26-75	11+95	306W	545.00	6	CL(E)			T	116.5	14.6	3	113.7	14.9	-.3	102.5	
CT-144	9-26-75	8+79	343W	557.00	6	CL(E)			T	107.8	14.6	3	112.1	14.7	-.1	96.2	
CT-145	9-26-75	6+60	353W	556.00	6	CL(E)			T	112.5	14.3	3	112.2	14.8	-.5	100.3	
RS-289	9-26-75	12+ 0	380W	540.00	18	CL	39	21	T	112.9	16.7	5	109.3	17.3	-.6	103.3	R-S
CT-146	9-27-75	12+29	199W	549.00	6	CL(E)			T	105.5	15.5	3	112.4	15.7	-.2	93.9	U-R,REW.
CT-147	9-27-75	8+34	427W	557.00	6	CL(E)			T	114.2	15.2	3	112.9	15.4	-.2	101.2	
CT-148	9-27-75	5+78	463W	564.00	6	CL(E)			T	109.0	16.3	3	114.3	15.2	1.1	95.4	U-NO ACTION

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-149	10- 6-75	12+25	330U	550.00	6	CL(E)			T	109.3	16.0	3	111.8	15.6	.4	97.8	
CT-150	10- 6-75	8+25	485U	558.00	6	CL	31	16	T	111.6	13.1	5	115.3	14.1	-1.0	96.8	
CT-151	10- 7-75	12+20	307U	548.00	6	CL(E)			T	113.3	13.1	3	115.2	13.8	-.7	98.4	
CT-152	10- 7-75	10+96	250U	549.00	6	CL(E)			T	106.2	15.5	3	110.2	16.2	-.7	96.4	
CT-153	10- 7-75	7+14	475U	555.00	6	CL(E)			T	112.1	14.0	3	111.9	15.5	-1.5	100.2	
CT-154	10- 8-75	9+35	424U	558.00	6	CL(E)			T	110.7	13.4	3	111.9	15.6	-2.2	98.9	U-NO ACTION
CT-155	10- 8-75	13+45	148U	554.00	6	CL(E)			T	110.7	14.4	3	110.4	15.2	-.8	100.3	
RS-81	10- 8-75	11+ 0	400U	545.00	18	CL	40	22	T	106.6	18.2	5	108.9	17.2	1.0	97.9	R-S
CT-156	10- 9-75	11+ 5	276U	551.00	6	CL(E)			T	118.6	14.2	3	113.8	14.8	-.6	104.2	
CT-157	10- 9-75	11+58	396U	548.00	6	CL(E)			T	112.1	15.0	3	110.2	16.2	-1.2	101.7	
CT-158	10-11-75	7+ 1	455U	555.00	6	CL(E)			T	112.8	13.4	3	112.4	14.4	-1.0	100.4	
CT-159	10-11-75	12+13	384U	551.00	6	CL(E)			T	117.4	14.0	3	114.0	14.4	-.4	103.0	
CT-160	10-11-75	12+32	271U	554.00	6	CL(E)			T	117.7	15.0	3	114.9	14.5	.5	102.4	
CT-161	10-13-75	11+89	330U	554.00	6	CL(E)			T	115.9	13.7	3	116.1	14.2	-.5	99.8	
CT-162	10-13-75	8+31	345U	560.00	6	CL	32	16	T	114.1	13.8	5	113.5	14.6	-.8	100.5	
CT-163	10-14-75	7+56	357U	560.00	6	CL(E)			T	114.3	14.3	3	113.7	14.9	-.6	100.5	
CT-164	10-14-75	6+75	400U	560.00	6	CL(E)			T	109.9	16.1	3	111.8	15.8	.3	98.3	
RS-112	10-14-75	12+ 0	320U	550.00	18	CL	30	16	T	113.2	14.4	5	114.9	14.4	0.0	98.5	R-S
RS-113	10-14-75	12+ 0	170U	550.00	18	CL	38	21	T	112.7	15.8	5	109.8	17.2	-1.4	102.6	R-S
RS-286	10-20-75	8+ 0	350U	560.00	18	CL	31	15	T	112.1	13.4	5	112.9	15.2	-1.8	99.3	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-82	10-20-75	11+ 0	320W	550.00	18	CL	28	14	T	116.8	14.6	5	115.8	14.0	.6	100.9	R-S
CT-165	10-21-75	7+ 5	370W	561.50	6	CL(E)			T	108.5	14.1	3	111.6	15.7	-1.6	97.2	
CT-166	10-21-75	7+50	475W	559.50	6	CL(E)			T	111.3	12.8	3	111.4	15.4	-2.6	99.9	U-R,MAT. REM.
CT-167	10-21-75	8+94	475W	559.50	6	CL(E)			T	105.4	12.7	3	109.2	15.3	-2.6	96.5	U-R,MAT. REM.
RS-139	10-21-75	12+75	350W	550.00	18	CL	29	15	T	117.1	14.7	5	114.6	14.3	.4	102.2	R-S
RS-140	10-21-75	12+75	280W	550.00	18	CL	32	16	T	113.9	14.5	5	112.3	15.1	-.6	101.4	R-S
CT-168	10-22-75	8+25	335W	561.50	6	CL(E)			T	111.7	15.1	3	111.2	15.8	-.7	100.4	
CT-169	10-23-75	8+65	415W	562.00	6	CL(E)			T	105.2	15.9	3	111.5	15.6	.3	94.3	U-R,RER.
CT-170	10-23-75	6+ 0	469W	561.50	6	CL	37	19	T	106.9	14.6	5	111.0	16.6	-2.0	96.3	
SB-1	7-17-76	5+ 0	47W	487.00	6	CL(E)			T	109.9	15.6	3	106.4	17.2	-1.6	103.3	
SB-2	7-17-76	5+65	40W	486.00	6	CL(E)			T	93.3	16.9	3	106.6	17.2	-.3	87.5	U-R,RER.
SB-3	7-17-76	4+15	44W	486.00	6	CL(E)			T	109.7	16.1	3	105.7	17.1	-1.0	103.8	
SB-4	7-17-76	3+37	45W	495.00	6	CL(E)			T	109.3	17.0	3	107.5	17.5	-.5	101.7	
SB-5	7-18-76	3+85	41W	494.00	6	CL(E)			T	108.1	17.5	3	108.0	17.7	-.2	100.1	
SB-6	7-18-76	3+20	40W	498.00	6	CL(E)			T	100.3	17.6	3	106.6	17.0	.6	94.1	U-R,RER.
SB-7	7-18-76	3+85	61W	497.00	6	CL(E)			T	106.0	15.8	3	106.9	18.1	-2.3	99.2	U-NO ACTION
SB-8	7-19-76	3+92	51W	500.00	6	CL(E)			T	112.8	16.5	3	107.2	17.1	-.6	105.2	
SB-10	7-20-76	4+ 5	45W	507.00	6	CL	47	28	T	102.0	18.5	3	106.0	17.6	.9	96.2	
SB-9	7-20-76	4+77	40W	500.00	6	CL(E)			T	101.4	17.2	3	108.3	16.2	1.0	93.6	U-R,RER.
SB-11	7-21-76	4+62	40W	508.00	6	CL(E)			T	110.5	15.5	3	108.0	16.8	-1.3	102.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION		
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
SB-12	7-23-76	5+60	40U	496.00	6	CL(E)			T	89.1	14.5	3	105.9	16.3	-1.8	84.1	U-R, SB-16
SB-13	7-23-76	6+52	50U	491.00	6	CL(E)			T	95.7	15.1	3	107.0	16.4	-1.3	89.4	U-R,RER.
SB-14	7-23-76	5+89	45U	492.00	6	CL(E)			T	105.8	15.6	3	107.9	17.8	-2.2	98.1	U-NO ACTION
SB-15	7-23-76	4+36	40U	491.00	6	CL(E)			T	114.3	15.7	3	107.9	17.3	-1.6	105.9	
SB-16	7-24-76	5+58	39U	496.00	6	CL(E)			T	105.0	16.7	3	107.5	17.1	-.4	97.7	RETEST,SB-12
SB-17	7-26-76	5+90	51U	498.00	6	CL(E)			T	107.8	19.2	3	107.6	17.7	1.5	100.2	U-R, SB-21
SB-18	7-26-76	6+67	45U	498.00	6	CL(E)			T	103.6	16.1	3	106.0	15.6	.5	97.7	
SB-19	7-26-76	6+ 0	52U	500.00	6	CL(E)			T	102.8	18.8	3	105.9	19.2	-.4	97.1	
SB-20	7-27-76	5+64	40U	500.00	6	CL	47	29	T	106.4	18.5	5	110.7	18.8	-.3	96.1	
SB-20	7-27-76	5+64	40U	500.00	6	CL	47	29	T	106.4	18.5	3	109.0	17.7	.8	97.6	
SB-21	7-27-76	5+92	52U	498.00	6	CL(E)			T	113.2	16.4	3	108.8	17.8	-1.4	104.0	RETEST,SB-17
SB-22	7-27-76	6+59	45U	502.00	6	CL(E)			T	101.5	17.3	3	107.2	17.6	-.3	94.7	U-R,MAT. REM.
SB-23	7-29-76	5+63	45U	506.00	6	CL(E)			T	107.8	15.6	3	106.0	17.2	-1.6	101.7	
SB-24	7-29-76	6+65	45U	501.00	6	CL(E)			T	106.1	16.4	3	109.1	16.8	-.4	97.3	
SB-25	7-30-76	6+20	65U	504.00	6	CL(E)			T	106.0	15.8	3	106.2	17.2	-1.4	99.8	
SB-26	7-30-76	3+90	45U	512.00	6	CL(E)			T	102.6	15.5	3	108.9	16.8	-1.3	94.2	U-R,REW.
SB-27	7-30-76	4+95	56U	512.00	6	CL(E)			T	113.2	15.9	3	108.9	17.0	-1.1	103.9	
SB-29	8- 1-76	9+60	40U	486.00	6	CL(E)			T	103.5	15.6	3	111.4	15.7	-.1	92.9	U-R,MAT. REM.
SB-30	8- 1-76	8+90	31U	486.00	6	CL	36	19	T	110.9	17.1	3	110.6	16.0	1.1	100.3	U-NO ACTION
SB-30	8- 1-76	8+90	31U	486.00	6	CL	36	19	T	110.9	17.1	5	109.8	16.6	.5	101.0	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
SB-31	8- 2-76	9+92	20D	486.00	6	CL(E)			T	114.4	14.3	3	112.1	15.3	-1.0	102.1	
SB-32	8- 2-76	3+40	40U	520.00	6	CL(E)			T	105.5	16.3	3	108.3	16.4	-.1	97.4	
SB-33	8- 3-76	3+85	40U	519.00	6	CL(E)			T	105.5	17.2	3	110.3	15.6	1.6	95.6	U-R,SB-35
SB-34	8- 3-76	9+95	89D	491.00	6	CL(E)			T	117.3	14.5	3	111.9	15.3	-.8	104.8	
RS-58	8- 4-76	10+ 0	20U	490.00	18	CL	36	20	T	113.1	14.8	5	111.0	15.6	-.8	101.9	R-S
RS-59	8- 4-76	10+ 0	50D	490.90	18	CL	36	20	T	108.2	15.0	5	109.5	16.8	-1.8	98.8	R-S
SB-35	8- 5-76	3+90	41U	519.00	6	CL(E)			T	107.4	16.5	3	108.6	15.6	.9	98.9	RETEST,SB-33
SB-36	8- 6-76	9+55	21U	494.00	6	CL(E)			T	101.8	15.4	3	109.8	15.6	-.2	92.7	U-R,RER.
SB-37	8-10-76	6+53	47U	511.00	6	CL(E)			T	98.4	12.9	3	110.8	15.8	-2.9	88.8	U-R,MAT. REM.
SB-38	8-10-76	9+88	60D	490.00	6	CL(E)			T	114.2	13.3	3	110.8	15.8	-2.5	103.1	U-R,MAT. REM.
SB-39	8-18-76	9+51	21U	497.00	6	CL(E)			T	120.8	11.8	3	117.2	13.1	-1.3	103.1	
SB-40	8-19-76	9+21	85D	493.00	6	CL(E)			T	108.1	14.9	3	112.0	15.1	-.2	96.5	
SB-41	8-20-76	9+ 5	101D	489.00	6	CL	36	19	T	109.8	15.6	5	109.5	16.2	-.6	100.3	
SB-41	8-20-76	9+ 5	101D	489.00	6	CL	36	19	T	109.8	15.6	3	111.2	15.1	.5	98.7	
SB-42	8-23-76	10+ 4	32U	501.00	6	CL(E)			T	106.9	16.7	3	111.8	15.9	.8	95.6	
SB-44	8-24-76	10+ 4	95D	490.00	6	CL(E)			T	104.5	12.7	3	109.9	16.2	-3.5	95.1	U-R,SB-46
SB-45	8-24-76	10+ 5	49D	492.00	6	CL(E)			T	116.6	13.3	3	109.0	15.8	-2.5	107.0	U-R, SB-47
SB-46	8-25-76	10+ 8	95D	490.00	6	CL(E)			T	105.2	13.3	3	110.4	15.1	-1.8	95.3	RETEST,SB-44
SB-47	8-25-76	10+ 8	27D	492.00	6	CL(E)			T	110.0	12.5	3	109.2	15.1	-2.6	100.7	U-R, SB-51
SB-48	8-25-76	8+55	120D	485.00	6	CL(E)			T	116.3	12.5	3	109.2	15.0	-2.5	106.5	U-R, SB-49

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA		CORRELATION		
							ATTERBERG LIMITS									
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
SB-49	8-26-76	9+21	113D	486.00	6	CL(E)			T	109.1	15.0	3	108.5	16.0	-1.0	100.6	RETEST,SB-48
SB-50	8-26-76	10+ 8	95D	490.00	6	CL	39	22	T	114.3	14.0	3	110.5	15.7	-1.7	103.4	
SB-51	8-26-76	10+ 8	30D	492.00	6	CL(E)			T	101.9	13.3	3	108.5	16.0	-2.7	93.9	U-R, SB-53
SB-52	8-27-76	9+35	40U	507.00	6	CL(E)			T	112.2	13.6	3	110.3	15.7	-2.1	101.7	U-NO ACTION
SB-53	8-27-76	10+ 8	95D	492.00	6	CL(E)			T	111.3	18.0	3	108.8	17.2	.8	102.3	RETEST,SB-51
SB-54	8-30-76	9+50	41U	507.00	6	CL(E)			T	113.7	17.1	3	111.0	16.7	.4	102.4	
SB-55	8-30-76	9+86	9D	502.00	6	CL(E)			T	111.8	16.8	3	109.1	16.7	.1	102.5	
SB-56	8-30-76	9+20	84D	493.00	6	CL(E)			T	103.6	15.5	3	111.1	16.1	-.6	93.2	U-R, SB-59
SB-57	8-30-76	9+51	21U	510.00	6	CL(E)			T	105.6	17.3	3	108.8	16.9	.4	97.1	
SB-58	8-31-76	9+75	35U	511.00	6	CL(E)			T	108.0	16.8	3	109.6	16.5	.3	98.5	
SB-59	8-31-76	9+20	90D	493.00	6	CL(E)			T	106.2	16.5	3	109.0	16.8	-.3	97.4	RETEST,SB-56
SB-60	8-31-76	9+30	105D	497.00	6	CL	36	18	T	106.5	17.4	5	107.5	16.6	.8	99.1	
SB-60	8-31-76	9+30	105D	497.00	6	CL	36	18	T	106.5	17.4	3	109.0	16.6	.8	97.7	
SB-61	9- 1-76	9+85	65D	502.00	6	CL(E)			T	95.8	16.1	3	109.7	16.1	0.0	87.3	U-R,RER.
SB-62	9- 1-76	8+70	105D	499.00	6	CL(E)			T	111.5	15.3	3	109.9	16.2	-.9	101.5	
SB-63	9- 2-76	10+14	65D	505.00	6	CL(E)			T	109.6	16.1	3	109.3	16.8	-.7	100.3	
SB-64	9- 2-76	9+50	61D	502.00	6	CL(E)			T	108.2	17.8	3	109.2	16.9	.9	99.1	
SB-65	9- 3-76	10+45	55U	514.00	6	CL(E)			T	110.7	15.0	3	110.2	15.6	-.6	100.5	
SB-66	9- 3-76	10+12	107D	506.00	6	CL(E)			T	112.0	14.7	3	109.6	15.8	-1.1	102.2	
SB-67	9- 7-76	10+39	4D	513.00	6	CL(E)			T	110.6	19.0	3	108.6	17.5	1.5	101.8	U-R,REW.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-68	9- 7-76	9+85	22U	514.00	6	CL(E)			T	111.2	16.8	3	109.8	16.4	.4	101.3	
SB-69	9- 8-76	9+35	90U	515.00	6	CL(E)			T	114.2	15.7	3	109.9	16.0	-.3	103.9	
SB-70	9- 8-76	8+90	96D	501.00	6	CL	36	19	T	116.9	13.9	3	109.9	16.0	-2.1	106.4	U-NO ACTION
SB-71	9- 9-76	6+74	45U	512.00	6	CL(E)			T	104.9	18.0	3	110.4	16.1	1.9	95.0	U-P,MAT. REM.
SB-72	9- 9-76	5+64	40U	516.00	6	CL(E)			T	106.4	15.8	3	110.6	15.8	0.0	96.2	
SB-73	9-10-76	6+64	45U	512.00	6	CL(E)			T	107.1	15.3	3	111.6	15.3	0.0	96.0	RETEST,SB-71
SB-74	9-13-76	9+94	18D	517.00	6	CL(E)			T	111.5	16.6	3	112.0	15.6	1.0	99.6	
SB-75	9-13-76	9+39	34U	521.00	6	CL(E)			T	111.0	17.1	3	109.8	16.7	.4	101.1	
SB-76	9-13-76	6+76	52U	514.00	6	CL(E)			T	100.2	13.3	[illegible]	109.0	16.9	-3.6	91.9	U-R,MAT. REM.
SB-77	9-14-76	8+49	122D	503.00	6	CL(E)			T	105.9	16.9	3	108.5	17.0	-.1	97.6	
SB-78	9-14-76	9+30	96D	514.00	6	CL(E)			T	113.7	15.7	3	110.7	16.8	-1.1	102.7	
SB-79	9-14-76	9+17	20U	522.00	6	CL(E)			T	107.8	17.7	3	110.4	16.9	.8	97.6	
SB-80	9-14-76	10+35	80U	525.00	6	CL	35	19	T	105.2	16.4	3	110.6	16.6	-.2	95.1	
SB-80	9-14-76	10+35	80U	525.00	6	CL	35	19	T	105.2	16.4	5	109.0	16.6	-.2	96.5	
RS-60	9-15-76	10+ 0	10D	520.00	18	CL	35	18	T	110.9	16.3	5	109.7	16.7	-.4	101.1	R-S
SB-81	9-15-76	10+45	75U	526.00	6	CL(E)			T	116.2	15.9	3	111.5	15.8	.1	104.2	
SB-82	9-15-76	10+55	0C	525.00	6	CL(E)			T	112.5	17.3	3	111.1	16.4	.9	101.3	
SB-83	9-16-76	9+70	95U	529.00	6	CL(E)			T	109.8	14.1	3	111.9	15.3	-1.2	98.1	
SB-84	9-16-76	8+61	230U	543.00	6	CL(E)			T	106.7	18.2	3	109.7	16.5	1.7	97.3	U-R,SB-92
SB-85	9-16-76	9+65	38U	529.00	6	CL(E)			T	105.3	18.0	3	109.5	16.6	1.4	96.2	U-R,SB-91

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-86	9-16-76	9+16	140U	531.00	6	CL(E)			T	108.7	19.0	3	108.4	17.0	2.0	100.3	U-R,SB-93
SB-87	9-16-76	9+86	48D	525.00	6	CL(E)			T	100.7	19.9	3	108.7	16.9	3.0	92.6	U-R,SB-90
SB-88	9-17-76	10+40	126D	524.00	6	CL(E)			T	111.6	14.5	3	111.8	15.0	-.5	99.8	
SB-89	9-17-76	9+21	57D	513.00	6	CL(E)			T	112.7	16.1	3	110.9	16.3	-.2	101.6	
SB-90	9-17-76	9+86	45D	525.00	6	CL	31	17	T	110.0	19.1	3	111.0	16.9	2.2	99.1	U-R,SB-95
SB-91	9-17-76	9+60	38U	529.00	6	CL(E)			T	114.9	16.4	3	112.2	16.2	.2	102.4	RETEST,SB-85
SB-92	9-18-76	8+61	230U	543.00	6	CL(E)			T	103.5	16.4	3	111.3	15.6	.8	93.0	U-R,SB-94
SB-93	9-18-76	9+16	140U	531.00	6	CL(E)			T	106.8	16.6	3	112.1	15.6	1.0	95.3	RETEST,SB-86
SB-94	9-21-76	8+61	230U	543.00	6	CL(E)			T	113.9	15.7	3	111.3	16.1	-.4	102.3	RETEST,SB-92
SB-95	9-22-76	9+86	45D	525.00	6	CL(E)			T	102.1	16.1	3	109.7	16.2	-.1	93.1	U-R,RER.
SB-96	9-22-76	10+35	132D	526.00	6	CL(E)			T	112.1	16.5	3	110.5	16.4	.1	101.4	
SB-97	9-22-76	9+91	17U	532.00	6	CL(E)			T	108.0	17.8	3	109.7	16.6	1.2	98.5	U-NO ACTION
SB-98	9-23-76	9+70	145D	508.00	6	CL(E)			T	113.8	16.8	3	110.6	15.8	1.0	102.9	
SB-99	9-23-76	8+66	50D	500.00	6	CL(E)			T	109.9	16.4	3	109.9	16.2	.2	100.0	
SB-101	9-24-76	10+51	25D	533.00	6	CL(E)			T	108.1	14.4	3	111.2	15.6	-1.2	97.2	
SB-102	9-24-76	9+51	100U	536.00	6	CL(E)			T	114.5	11.9	3	112.3	14.0	-2.1	102.0	U-NO ACTION
SB-103	9-24-76	10+28	148U	540.00	6	CL(E)			T	117.8	15.9	3	110.7	16.0	-.1	106.4	
SB-104	9-24-76	10+66	73D	534.00	6	CL(E)			T	121.7	15.4	3	111.7	15.9	-.5	109.0	
SB-105	9-29-76	11+66	85U	539.00	6	CL(E)			T	119.0	15.3	3	112.0	15.5	-.2	106.3	
SB-106	9-29-76	11+12	55U	539.00	6	CL(E)			T	113.1	17.4	3	109.7	16.7	.7	103.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
SB-107	10- 1-76	9+84	315U	542.00	6	CL(E)			T	118.6	14.0	3	114.4	14.3	-.3	103.7	
SB-108	10- 1-76	9+31	80D	513.00	6	CL(E)			T	111.6	14.4	3	113.0	14.5	-.1	98.8	
SB-109	10- 1-76	9+ 5	105D	511.00	6	CL(E)			T	116.6	14.7	3	114.3	14.3	.4	102.0	
SB-110	10- 1-76	8+61	82D	507.00	6	CL(E)			T	111.5	14.1	3	114.8	14.2	-.1	97.1	
SB-111	10- 4-76	9+ 0	100D	512.00	6	CL(E)			T	111.7	15.5	3	111.9	15.8	-.3	99.8	
SB-112	10- 7-76	11+10	100U	539.00	6	CL	35	17	T	111.7	18.0	3	109.0	17.0	1.0	102.5	
SB-113	10- 7-76	11+60	100U	540.00	6	CL(E)			T	112.9	17.0	3	112.5	15.9	1.1	100.4	U-NO ACTION
SB-114	10- 8-76	11+43	60U	539.00	6	CL(E)			T	114.4	16.2	3	112.0	15.6	.6	102.1	
SB-115	10-12-76	6+52	45U	514.00	6	CL(E)			T	111.9	15.8	3	110.9	15.6	.2	100.9	
SB-116	10-12-76	11+21	91U	542.00	6	CL(E)			T	114.7	15.1	3	112.4	14.8	.3	102.0	
SB-117	10-13-76	6+60	45U	518.00	6	CL(E)			T	109.6	15.3	3	109.6	16.3	-1.0	100.0	
SB-118	10-13-76	9+ 0	103D	514.00	6	CL(E)			T	117.0	13.6	3	111.4	15.2	-1.6	105.0	
SB-119	10-13-76	6+64	58U	517.00	18	CL(E)			T	110.5	16.1	3	109.5	16.4	-.3	100.9	
SB-120	10-13-76	9+71	90U	542.00	6	CL(E)			T	115.1	14.2	3	112.4	14.6	-.4	102.4	
SB-121	10-13-76	10+52	155U	542.00	6	CL	33	17	T	112.3	13.8	5	111.6	15.0	-1.2	100.6	
SB-121	10-13-76	10+52	155U	542.00	6	CL	33	17	T	112.3	13.8	3	112.4	15.1	-1.3	99.9	
SB-122	10-14-76	6+78	48U	518.00	6	CL(E)			T	110.4	15.8	3	111.2	15.6	.2	99.3	
SB-123	10-14-76	6+24	57U	518.00	6	CL(E)			T	111.1	15.2	3	110.9	15.3	-.1	100.2	
SB-124	10-14-76	5+95	45U	516.00	6	CL(E)			T	104.1	16.9	3	107.5	16.8	.1	96.8	
SB-125	10-15-76	9+15	139D	518.00	6	CL(E)			T	117.2	12.1	3	114.2	13.3	-1.2	102.6	

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
SB-126	10-15-76	9+22	63D	519.00	6	CL(E)			T	114.7	12.9	3	113.3	14.3	-1.4	101.2	
SB-127	10-15-76	5+95	52U	517.00	6	CL(E)			T	110.5	14.2	3	110.3	15.6	-1.4	100.2	
RS-62	10-16-76	10+ 0	50U	540.00	18	CL	31	14	T	112.5	15.8	5	110.0	16.2	-.4	102.3	R-S
SB-128	10-16-76	9+75	65D	521.00	6	CL(E)			T	113.2	11.6	3	112.3	14.6	-3.0	100.8	U-R,REV.
SB-129	10-16-76	9+85	140D	520.00	6	CL(E)			T	117.1	12.3	3	112.0	14.7	-2.4	104.6	U-R,REV.
SB-130	10-16-76	9+74	126U	543.00	6	CL	34	17	T	112.7	13.5	3	111.7	14.7	-1.2	100.9	
SB-131	10-16-76	11+53	148U	543.00	6	CL(E)			T	114.3	14.1	3	113.9	14.3	-.2	100.4	
SB-132	10-18-76	10+ 0	40U	541.00	6	CL(E)			T	114.9	13.7	3	111.0	15.3	-1.6	103.5	
SB-133	10-18-76	11+20	150U	542.00	6	CL(E)			T	116.5	13.0	3	112.0	15.2	-2.2	104.0	U-R,SB-139
SB-134	10-18-76	11+10	25U	543.00	6	CL(E)			T	116.9	12.1	3	111.6	14.6	-2.5	104.7	U-R,SB-141
SB-135	10-18-76	10+60	90U	542.00	6	CL(E)			T	116.5	13.6	3	111.7	15.0	-1.4	104.3	
SB-136	10-19-76	10+47	123U	545.00	6	CL(E)			T	114.4	13.4	3	111.8	15.2	-1.8	102.3	
SB-137	10-19-76	10+ 8	68U	544.00	6	CL(E)			T	114.9	11.1	3	114.3	13.9	-2.8	100.5	U-R,SB-142
SB-138	10-19-76	11+30	139U	543.00	6	CL(E)			T	116.8	13.6	3	112.8	15.1	-1.5	103.5	
SB-139	10-20-76	11+20	150U	542.00	6	CL(E)			T	118.9	15.1	3	110.8	16.1	-1.0	107.3	RETEST,SB133
SB-140	10-20-76	12+66	50U	542.00	6	CL	33	16	T	117.5	14.5	3	113.5	15.4	-.9	103.5	
SB-140	10-20-76	12+66	50U	542.00	6	CL	33	16	T	117.5	14.5	5	111.7	14.8	-.3	105.2	
SB-141	10-20-76	11+10	25U	543.00	6	CL(E)			T	118.2	14.3	3	112.9	15.1	-.8	102.9	RETEST,SB134
SB-142	10-20-76	10+ 8	68U	544.00	6	CL(E)			T	115.2	12.8	3	112.8	14.6	-1.8	102.1	RETEST,SB137
SB-143	10-21-76	9+90	225U	547.00	6	CL(E)			T	115.9	14.5	3	113.5	15.1	-.6	102.1	

PLATE NO. 27

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-144	10-21-76	10+90	140U	543.00	6	CL(E)			T	111.0	14.4	3	112.3	15.4	-1.0	98.8	
SB-145	10-21-76	12+35	110U	542.00	6	CL(E)			T	108.5	16.7	3	110.2	16.6	.1	98.5	
SB-146	10-21-76	11+35	180U	545.00	6	CL(E)			T	111.2	14.7	3	111.3	15.3	-.6	99.9	
SB-147	10-21-76	10+16	40U	546.00	6	CL(E)			T	107.1	18.1	3	109.6	16.5	1.6	97.7	U-R,REW.
SB-148	10-22-76	10+ 5	260U	548.00	6	CL(E)			T	115.6	13.6	3	112.4	15.0	-1.4	102.8	
SB-149	4-19-77	9+19	75U	527.60	6	CL(E)			T	111.1	15.1	3	111.9	15.6	-.5	99.3	
SB-150	4-27-77	9+15	78U	530.00	6	CL(E)			T	112.0	14.1	3	111.2	15.5	-1.4	100.7	
SB-151	4-27-77	9+21	175U	535.00	6	CL(E)			T	108.8	15.1	3	110.8	15.6	-.5	98.2	
SB-152	4-27-77	9+26	27U	534.00	6	CL(E)			T	114.0	13.0	3	111.4	15.0	-2.0	102.3	
SB-153	4-30-77	9+25	19U	536.00	6	CL(E)			T	110.8	18.0	3	114.2	14.5	3.5	97.0	U-R,REW.
SB-154	4-30-77	9+39	109U	537.00	6	CL(E)			T	114.8	14.1	3	111.4	15.6	-1.5	103.1	
SB-155	7- 7-77	9+20	78U	536.00	6	CL(E)			T	128.3	12.2	3	114.3	13.9	-1.7	112.2	
SB-156	7- 7-77	11+30	144U	547.00	6	CL(E)			T	111.5	10.1	3	109.9	15.8	-5.7	101.5	U-R, SB-158
SB-157	7- 7-77	10+16	40U	546.00	6	CL(E)			T	120.2	13.4	3	111.8	15.1	-1.7	107.5	RETEST,SB147
SB-158	7- 7-77	11+30	144U	547.00	6	CL(E)			T	110.9	16.9	3	112.4	15.1	1.8	98.7	U-R, SB-159
SB-159	7- 8-77	11+30	144U	547.00	6	CL(E)			T	116.9	14.3	3	113.0	14.4	-.1	103.5	RETEST,SB158
SB-160	7- 9-77	9+28	26U	538.00	6	CL	33	16	T	114.1	14.3	5	114.3	13.7	.6	99.8	
SB-161	7- 9-77	9+41	200U	542.00	6	CL(E)			T	116.6	13.7	3	114.8	13.8	-.1	101.6	
SB-162	7- 9-77	11+58	54U	547.00	6	CL(E)			T	113.7	16.1	3	112.7	15.0	1.1	100.9	U, NO ACTION
SB-163	7- 9-77	12+21	109U	544.00	6	CL(E)			T	111.3	16.0	3	110.8	15.8	.2	100.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-164	7- 9-77	9+97	86U	551.00	6	CL(E)			T	118.9	12.9	3	114.2	14.3	-1.4	104.1	
SB-165	7- 9-77	10+56	130U	550.00	6	CL(E)			T	114.3	15.8	3	114.0	14.4	1.4	100.3	U-R, SB-176
SB-166	7-13-77	9+38	108U	541.00	6	CL(E)			T	120.1	13.3	3	115.5	13.6	-.3	104.0	
SB-167	7-13-77	12+ 6	66U	547.00	6	CL(E)			T	119.5	13.3	3	116.5	13.3	0.0	102.6	
SB-168	7-13-77	11+ 0	138U	549.00	6	CL(E)			T	122.4	13.1	3	116.1	13.4	-.3	105.4	
SB-169	7-15-77	9+22	190U	541.00	6	CL(E)			T	117.3	15.2	3	112.0	15.3	-.1	104.7	
SB-170	7-16-77	9+45	125U	543.00	6	CL	37	21	T	118.2	14.3	3	111.8	15.3	-1.0	105.7	
SB-171	7-19-77	9+85	140D	520.00	6	CL(E)			T	116.6	14.1	3	112.5	15.0	-.9	103.6	RETEST,SB129
SB-172	7-19-77	9+75	65D	521.00	6	CL(E)			T	113.0	12.7	3	114.0	14.0	-1.3	99.1	RETEST,SB128
SB-173	7-20-77	9+45	21U	543.00	6	CL(E)			T	114.8	16.1	3	113.9	15.1	1.0	100.8	
SB-174	7-20-77	9+20	185U	544.00	6	CL(E)			T	114.6	14.6	3	112.3	15.0	-.4	102.0	
SB-175	7-20-77	9+62	145D	522.00	6	CL(E)			T	116.3	13.8	3	113.3	14.8	-1.0	102.6	
SB-176	7-20-77	10+56	130U	550.00	6	CL(E)			T	114.5	15.0	3	112.9	15.0	0.0	101.4	RETEST,SB165
SB-177	7-21-77	8+26	315D	521.00	6	CL(E)			T	108.6	16.3	3	114.9	13.4	2.9	94.5	U-R, SB-182
SB-178	7-21-77	8+18	275D	522.00	6	CL(E)			T	113.4	15.4	3	114.3	14.6	.8	99.2	
SB-179	7-21-77	9+38	27U	545.00	6	CL(E)			T	111.4	16.2	3	113.4	15.4	.8	98.2	
SB-180	7-21-77	9+33	78U	545.00	6	CL	35	18	T	116.2	15.5	3	114.6	15.0	.5	101.4	
SB-180	7-21-77	9+33	78U	545.00	6	CL	35	18	T	116.2	15.5	5	113.6	14.4	1.1	102.3	
SB-181	7-22-77	9+26	210U	547.00	6	CL(E)			T	118.7	14.4	3	113.8	13.9	.5	104.3	
SB-182	7-23-77	8+26	315D	521.00	6	CL(E)			T	107.7	13.2	3	115.0	14.3	-1.1	93.7	U R, SB-183

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS LL	CLASSIFICATION: ATTERBERG LIMITS PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-183	7-26-77	8+26	315D	521.00	6	CL(E)			T	121.2	14.6	3	115.7	14.4	.2	104.8	RETEST,SB182
SB-184	7-26-77	8+60	360D	523.00	6	CL(E)			T	115.5	14.9	3	112.3	15.1	-.2	102.8	
SB-185	7-26-77	7+70	440D	519.00	6	CL(E)			T	110.8	14.1	3	112.0	15.2	-1.1	98.9	
SB-186	7-26-77	10+80	112U	551.00	6	CL(E)			T	112.1	14.8	3	112.7	15.0	-.2	99.5	
SB-187	7-26-77	11+27	158U	550.00	6	CL(E)			T	109.3	14.3	3	112.5	15.0	-.7	97.2	
SB-188	7-27-77	9+43	156U	549.00	6	CL(E)			T	114.4	13.9	3	114.3	14.1	-.2	100.1	
SB-189	7-27-77	9+51	95U	549.00	6	CL(E)			T	117.0	15.2	3	113.8	14.2	1.0	102.8	
SB-190	7-27-77	9+30	110D	525.00	6	CL	34	18	T	111.8	13.7	3	113.6	14.4	-.7	98.4	
SB-191	7-28-77	10+61	375U	540.00	6	CL(E)			T	119.8	12.8	3	113.1	14.6	-1.8	105.9	
SB-192	7-28-77	10+80	300U	541.00	6	CL(E)			T	118.3	14.2	3	114.4	14.2	0.0	103.4	
SB-193	7-29-77	9+60	265U	551.00	6	CL(E)			T	116.5	13.7	3	112.3	14.6	-.9	103.7	
SB-194	7-29-77	9+21	145D	523.00	6	CL(E)			T	107.2	15.1	3	114.4	14.1	1.0	93.7	U-R,REV.
SB-195	7-30-77	10+40	350U	549.00	6	CL(E)			T	112.4	14.4	3	114.7	14.2	.2	98.0	
SB-196	7-30-77	9+71	88U	552.00	6	CL(E)			T	117.8	15.0	3	115.7	14.0	1.0	101.8	
SB-197	7-30-77	11+ 0	450U	544.00	6	CL(E)			T	117.0	13.5	3	115.1	14.1	-.6	101.7	
SB-198	7-30-77	9+55	80D	524.00	6	CL(E)			T	113.1	14.0	3	114.3	14.0	0.0	99.0	
SB-199	7-30-77	10+10	145U	550.00	6	CL(E)			T	116.0	13.8	3	113.6	14.4	-.6	102.1	
SB-200	8- 2-77	8+12	331D	524.00	6	CL	35	20	T	107.1	12.8	3	112.8	14.2	-1.4	94.9	U, NO ACTION
SB-200	8- 2-77	8+12	331D	524.00	6	CL	35	20	T	107.1	12.8	5	114.0	14.0	-1.2	93.9	U, NO ACTION
SB-201	8- 2-77	9+20	97D	525.00	6	CL(E)			T	111.6	12.5	3	114.9	13.5	-1.0	97.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
SB-202	8- 3-77	10+35	240D	523.00	6	CL(E)			T	116.2	12.6	3	114.6	13.8	-1.2	101.4	
SB-203	8- 3-77	10+77	321D	523.00	6	CL(E)			T	108.9	12.3	3	115.0	14.1	-1.8	94.7	U-R,RER.
SB-204	8- 3-77	9+63	153D	524.00	6	CL(E)			T	112.3	13.2	3	115.3	13.7	-.5	97.4	
SB-205	8- 3-77	8+ 0	465U	562.00	6	CL(E)			T	109.2	14.2	3	114.0	14.8	-.6	95.8	
SB-206	8- 3-77	5+90	285U	564.00	6	CL(E)			T	107.2	12.0	3	115.0	13.2	-1.2	93.2	U-R, CT-171
CT-171	8- 4-77	5+90	285U	564.00	6	CL(E)			T	123.4	10.1	3	115.3	13.8	-3.7	107.0	U-R, CT-176
CT-172	8- 6-77	10+80	345U	552.00	6	CL(E)			T	104.6	15.2	3	112.4	15.4	-.2	93.1	U-R, CT-175
CT-173	8- 6-77	10+13	325U	553.00	6	CL(E)			T	110.0	14.7	3	114.7	14.0	.7	95.9	
CT-174	8- 6-77	10+60	350U	553.00	6	CL(E)			T	114.7	15.3	3	113.2	15.0	.3	101.3	
CT-175	8- 6-77	10+80	345U	552.00	6	CL(E)			T	114.1	15.2	3	114.5	14.8	.4	99.7	RETEST,CT172
SB-207	8- 6-77	9+28	200U	552.00	6	CL(E)			T	118.1	14.0	3	115.9	14.4	-.4	101.9	
SB-208	8- 6-77	9+68	52U	554.00	6	CL(E)			T	115.4	15.6	3	115.0	14.8	.8	100.3	
RS-64	8-17-77	10+ 0	300U	550.00	18	CL	32	16	T	115.1	15.4	5	112.7	15.5	-.1	102.1	R-S
RS-65	8-17-77	10+ 0	150U	550.00	18	CL	34	18	T	112.6	13.1	5	113.4	14.8	-1.7	99.3	R-S
1	8-17-77	9+40	130U	553.00	6	CL(E)			T	112.9	12.0	3	113.5	14.0	-2.0	99.5	
2	8-17-77	9+40	70U	553.00	6	CL(E)			T	120.1	11.7	3	117.2	12.9	-1.2	102.5	
CT-176	8-18-77	5+90	285U	564.00	6	CL(E)			T	120.3	14.1	3	114.9	14.2	-.1	104.7	RETEST,CT171
CT-177	8-18-77	8+ 0	450U	563.00	6	CL(E)			T	112.6	17.4	3	111.5	16.0	1.4	101.0	U, NO ACTION
CT-178	8-18-77	5+45	350U	565.00	6	CL(E)			T	116.3	15.7	3	112.7	15.4	.3	103.2	
CT-179	8-18-77	8+10	325U	565.00	6	CL(E)			T	113.8	14.9	3	113.1	14.9	0.0	100.6	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
3	8-18-77	10+35	350U	554.00	6	CL(E)			T	110.7	13.8	3	113.0	15.2	-1.4	98.0	
CT-180	8-19-77	8+ 0	430U	564.00	6	CL(E)			T	110.9	13.7	3	112.7	14.6	-.9	98.4	
CT-181	8-19-77	9+20	430U	563.00	6	CL(E)			T	112.5	17.0	3	110.7	16.7	.3	101.6	
CT-182	8-19-77	6+60	350U	567.00	6	CL(E)			T	111.2	14.7	3	111.9	15.8	-1.1	99.4	
4	8-19-77	10+35	440U	557.00	6	CL(E)			T	122.8	10.4	3	118.4	12.2	-1.8	103.7	
CT-183	8-20-77	9+45	425U	565.00	6	CL	33	17	T	117.7	15.1	3	112.0	14.9	.2	105.1	
CT-183	8-20-77	9+45	425U	565.00	6	CL	33	17	T	117.7	15.1	3	114.0	14.9	.2	103.2	
CT-184	8-20-77	8+ 0	390U	566.00	6	CL(E)			T	113.1	16.4	3	112.3	15.9	.5	100.7	
5	8-20-77	9+50	99D	526.00	6	CL(E)			T	107.6	13.8	3	111.3	15.8	-2.0	96.7	
CT-185	8-22-77	8+60	375U	567.00	6	CL(E)			T	111.2	17.6	3	109.2	16.8	.8	101.8	
CT-186	8-22-77	5+60	410U	566.00	6	CL(E)			T	107.0	16.2	3	109.9	16.4	-.2	97.4	
6	8-22-77	9+90	265D	526.00	6	CL(E)			T	111.0	13.7	3	110.5	16.3	-2.6	100.5	U-R, SEE 11
7	8-22-77	8+60	290D	526.00	6	CL(E)			T	117.0	13.8	3	115.7	13.8	0.0	101.1	
8	8-22-77	9+20	65D	529.00	6	CL(E)			T	100.6	18.5	3	111.0	16.6	1.9	90.6	U-R(IN SEPT)
9	8-22-77	9+27	360D	521.00	6	CL(E)			T	108.4	18.5	3	108.8	17.5	1.0	99.6	
CT-187	8-24-77	9+86	375U	560.00	6	CL(E)			T	110.0	13.5	3	111.3	15.4	-1.9	98.8	
CT-188	8-24-77	8+ 0	310U	568.00	6	CL(E)			T	114.9	11.5	3	114.6	13.8	-2.3	100.3	U, NO ACTION
CT-189	8-25-77	8+60	417U	567.00	6	CL(E)			T	114.7	14.3	3	111.2	15.9	-1.6	103.1	
CT-190	8-25-77	7+40	415U	568.00	6	CL	38	22	T	115.8	15.1	3	109.6	15.8	-.7	105.7	
CT-191	8-25-77	9+20	355U	567.00	6	CL(E)			T	120.6	9.9	3	117.9	12.6	-2.7	102.3	U-R, CT-194

PROJECT-			RIVER-			STATE-		TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-192	8-25-77	5+90	370U	570.00	6	CL(E)			T	109.5	14.6	3	111.9	14.8	-.2	97.9	
CT-193	8-26-77	8+ 0	430U	568.00	6	CL(E)			T	111.0	17.0	3	109.6	16.9	.1	101.3	
CT-194	8-26-77	9+20	355U	567.00	6	CL(E)			T	116.6	12.5	3	116.4	13.5	-1.0	100.2	RETEST,CT191
10	8-26-77	9+32	190U	556.00	6	CL	31	16	T	117.3	13.9	3	116.7	13.4	.5	100.5	
11	8-26-77	9+90	265D	526.00	6	CL(E)			T	109.3	17.0	3	109.5	16.7	.3	99.8	RETEST OF 6
12	8-26-77	10+17	302D	526.00	6	CL(E)			T	107.8	18.3	3	109.3	16.6	1.7	98.6	U-R, SEE -21
13	8-27-77	9+20	65D	529.00	6	CL(E)			T	99.6	18.7	3	106.5	18.0	.7	93.5	U-R(IN SEPT)
14	8-27-77	9+50	50D	530.00	6	CL(E)			T	113.1	17.9	3	110.9	15.8	2.1	102.0	U-R, SEE 17
15	8-27-77	10+35	329D	526.00	6	CL(E)			T	111.0	18.1	3	109.3	16.6	1.5	101.6	U-R, SEE 21
16	8-27-77	9+95	250D	526.00	6	CL(E)			T	114.6	17.6	3	109.4	16.8	.8	104.8	
17	8-27-77	9+50	50D	530.00	6	CL(E)			T	112.0	17.2	3	111.8	16.2	1.0	100.2	RETEST OF 14
18	8-27-77	8+90	330D	527.00	6	CL(E)			T	107.6	14.9	3	109.6	16.4	-1.5	98.2	
19	8-30-77	3+ 2	197D	530.00	6	CL	31	16	T	114.5	14.6	3	117.1	13.8	.8	97.8	
20	8-31-77	3+20	281D	528.00	6	CL(E)			T	106.4	14.9	3	116.3	14.2	.7	91.5	U-R(IN SEPT)
21	8-31-77	10+87	350D	526.00	6	CL(E)			T	123.7	13.2	3	119.4	12.6	.6	103.6	RETEST,12,15
CT-196	9- 1-77	5+90	375U	570.00	6	CL(E)			T	118.6	12.4	3	117.4	13.4	-1.0	101.0	
CT-197	9- 1-77	9+15	350U	567.00	6	CL(E)			T	116.6	14.9	3	114.5	15.1	-.2	101.8	
CT-198	9- 1-77	9+58	420U	565.00	6	CL(E)			T	112.8	14.4	3	115.2	13.8	.6	97.9	
CT-199	9- 1-77	8+ 1	408U	570.00	6	CL(E)			T	118.1	15.1	3	114.5	14.2	.9	103.1	
CT-200	9- 1-77	5+75	424U	568.00	6	CL	32	16	T	117.4	15.8	3	115.2	13.8	2.0	101.9	U-R, CT-204

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA		CORRELATION		
							ATTERBERG LIMITS									
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-200	9- 1-77	5+75	424U	568.00	6	CL	32	16	T	117.4	15.8	5	115.8	14.2	1.6	101.4	U-R, CT-204
22	9- 1-77	11+ 0	375D	531.00	6	CL(E)			T	125.3	12.4	3	119.7	12.9	-.5	104.7	
23	9- 1-77	11+25	455D	542.00	6	CL(E)			T	118.5	13.8	3	115.3	14.2	-.4	102.8	
24	9- 1-77	10+94	320D	535.00	6	CL(E)			T	117.8	14.8	3	114.6	14.3	.5	102.8	
CT-201	9- 2-77	9+20	337U	568.00	6	CL(E)			T	110.3	11.1	3	112.0	14.2	-3.1	98.5	U-R,MAT. REM.
CT-202	9- 2-77	6+52	392U	573.00	6	CL(E)			T	118.7	10.6	3	113.9	13.8	-3.2	104.2	U-R,MAT.REM.
CT-203	9- 2-77	8+ 0	428U	571.00	6	CL(E)			T	123.3	13.8	3	115.6	14.1	-.3	106.7	U-R,MAT.REM.
CT-204	9- 2-77	5+75	424U	568.00	6	CL(E)			T	116.0	15.0	3	116.3	13.7	1.3	99.7	U-R,MAT. REM.
CT-205	9- 6-77	9+90	365U	562.00	6	CL(E)			T	115.2	13.5	3	115.5	13.7	-.2	99.7	
CT-206	9- 6-77	8+60	360U	569.00	6	CL(E)			T	108.6	15.6	3	115.7	14.4	1.2	93.9	U-R,REW.
CT-207	9- 6-77	5+75	424U	567.00	6	CL(E)			T	116.6	15.8	3	115.6	14.3	1.5	100.9	U-R, CT-209
CT-208	9- 7-77	7+ 0	400U	572.00	6	CL(E)			T	120.1	13.2	3	116.4	13.8	-.6	103.2	
CT-209	9- 7-77	5+75	424U	567.00	6	CL(E)			T	121.0	14.0	3	115.8	13.9	.1	104.5	RETEST,CT207
CT-210	9- 7-77	9+49	368U	567.00	6	CL	32	17	T	118.9	13.7	3	116.1	13.8	-.1	102.4	
25	9- 7-77	3+20	281D	528.00	6	CL(E)			T	120.6	14.4	3	117.4	14.2	.2	102.7	RETEST OF 20
26	9- 7-77	2+90	197D	535.00	6	CL(E)			T	109.4	14.7	3	116.0	14.0	.7	94.3	U-R,RER.
27	9- 7-77	2+90	110D	535.00	6	CL(E)			T	111.8	13.2	3	116.0	14.0	-.8	96.4	
28	9- 8-77	8+90	340D	526.00	6	CL(E)			T	118.6	14.3	3	116.3	13.3	1.0	102.0	
29	9- 8-77	8+36	377D	528.00	6	CL(E)			T	119.5	12.6	3	115.6	13.0	-.4	103.4	
30	9- 8-77	9+38	27U	559.00	6	CL	32	17	T	115.7	12.9	3	115.3	13.8	-.9	100.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
30	9- 8-77	9+38	27U	559.00	6	CL	32	17	T	115.7	12.9	5	114.6	14.3	-1.4	101.0	
31	9- 8-77	9+20	260U	557.00	6	CL(E)			T	106.7	12.7	3	116.2	13.4	-.7	91.8	U-R, SEE •80
32	9- 8-77	8+57	398D	525.00	6	CL(E)			T	109.0	12.9	3	113.7	14.2	-1.3	95.9	
33	9- 8-77	10+50	360D	528.00	6	CL(E)			T	118.4	13.1	3	116.7	13.6	-.5	101.5	
34	9- 8-77	9+55	177D	530.00	6	CL(E)			T	116.3	14.3	3	116.7	13.6	.7	99.7	
35	9- 8-77	9+22	50D	532.00	6	CL(E)			T	110.2	16.9	3	112.7	16.1	.8	97.8	RETEST OF 13
36	9- 9-77	2+87	138D	537.00	6	CL(E)			T	117.4	13.1	3	112.1	12.9	.2	104.7	
37	9- 9-77	3+ 2	206D	537.00	6	CL(E)			T	119.5	13.8	3	117.2	12.9	.9	102.0	
38	9- 9-77	8+10	272D	531.00	6	CL(E)			T	113.8	14.7	3	116.2	13.2	1.5	97.9	U-R, SEE 43
39	9- 9-77	8+61	345D	529.00	6	CL(E)			T	112.6	13.4	3	115.0	13.8	-.4	97.9	
40	9- 9-77	10+25	350D	530.00	6	CL	32	17	T	114.6	12.7	5	115.8	13.8	-1.1	99.0	
40	9- 9-77	10+25	350D	530.00	6	CL	32	17	T	114.6	12.7	3	115.6	13.7	-1.0	99.1	
41	9- 9-77	9+38	75D	534.00	6	CL(E)			T	117.7	13.5	3	115.0	14.1	-.6	102.3	
42	9- 9-77	9+65	212D	531.00	6	CL(E)			T	114.7	14.6	3	115.6	13.7	.9	99.2	
43	9-10-77	8+10	272D	531.00	6	CL(E)			T	119.8	13.5	3	115.4	13.6	-.1	103.8	RETEST OF 38
44	9-20-77	2+80	162D	540.00	6	CL(E)			T	112.5	13.5	3	116.5	13.4	.1	96.6	
45	9-21-77	2+77	125D	542.00	6	CL(E)			T	119.7	13.9	3	116.8	13.9	0.0	102.5	
46	9-21-77	3+ 0	300D	540.00	6	CL(E)			T	112.9	14.2	3	116.8	13.9	.3	96.7	
47	9-22-77	2+71	145D	544.00	6	CL(E)			T	119.6	13.7	3	113.4	14.4	-.7	105.5	
48	9-22-77	3+15	211D	543.00	6	CL(E)			T	117.4	13.5	3	115.5	14.0	-.5	101.6	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
49	9-23-77	2+83	110D	546.00	6	CL(E)			T	114.1	13.9	3	114.7	14.0	-.1	99.5	
50	9-24-77	3+25	250D	542.00	6	CL	29	14	T	122.2	12.6	3	116.2	13.6	-1.0	105.2	
51	9-26-77	3+ 5	90D	547.00	6	CL(E)			T	120.8	14.7	3	115.5	14.0	.7	104.6	
52	9-26-77	2+85	127D	548.00	6	CL(E)			T	118.6	14.2	3	116.0	14.1	.1	102.2	
53	9-27-77	2+55	72D	552.00	6	CL(E)			T	117.8	12.8	3	117.5	12.6	.2	100.3	
54	9-27-77	2+70	125D	553.00	6	CL(E)			T	118.7	12.6	3	114.6	13.7	-1.1	103.6	
57	9-28-77	3+ 2	175D	553.00	6	CL(E)			T	120.6	13.2	3	115.9	13.7	-.5	104.1	
58	9-28-77	3+ 0	100D	554.00	6	CL(E)			T	118.4	13.8	3	115.3	14.0	-.2	102.7	
CT-211	9-29-77	9+18	409U	569.00	6	CL(E)			T	100.7	17.3	3	113.6	15.2	2.1	88.6	U-R,REW.
CT-212	9-29-77	6+13	386U	573.00	6	CL(E)			T	117.7	14.6	3	115.4	14.3	.3	102.0	
CT-213	10- 4-77	9+79	334U	568.00	6	CL(E)			T	113.7	14.3	3	110.3	16.1	-1.8	103.1	
CT-214	10- 4-77	7+45	400U	575.00	6	CL(E)			T	105.2	17.3	3	106.7	17.9	-.6	98.6	
CT-215	10- 4-77	8+ 0	425U	574.00	6	CL(E)			T	112.2	15.8	3	110.1	16.2	-.4	101.9	
59	10- 4-77	3+16	75D	556.00	6	CL(E)			T	115.8	13.2	3	113.7	13.1	.1	97.6	
60	10- 4-77	3+10	172D	556.00	6	CL	29	12	T	119.5	13.2	3	118.3	13.2	0.0	101.0	
60	10- 4-77	3+10	172D	556.00	6	CL	29	12	T	119.5	13.2	5	116.9	12.8	.4	102.2	
61	10- 5-77	3+ 8	150D	558.00	6	CL(E)			T	121.6	12.6	3	117.8	13.6	-1.0	103.2	
62	10- 5-77	2+65	55D	564.00	6	CL(E)			T	121.8	13.5	3	116.6	14.2	-.7	104.5	
CT-216	10- 6-77	8+ 2	390U	575.00	6	CL(E)			T	111.3	17.4	3	107.8	17.6	-.2	103.2	
CT-217	10- 6-77	10+29	410U	569.00	6	CL(E)			T	116.8	15.8	3	109.0	16.5	-.7	107.2	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
63	10- 6-77	2+95	90D	567.00	6	CL(E)			T	118.2	13.1	3	118.3	12.7	.4	99.9	
64	10- 6-77	2+95	135D	565.00	6	CL(E)			T	123.6	13.2	3	118.3	12.7	.5	104.5	
65	10- 6-77	3+53	137D	569.00	6	CL(E)			T	118.8	14.0	3	118.7	13.1	.9	100.1	
66	10- 6-77	3+ 0	45D	568.00	6	CL(E)			T	106.5	16.0	3	118.5	13.2	2.8	89.9	U-R,REMOVED
67	10-12-77	3+ 0	45D	568.00	6	CL(E)			T	118.7	13.1	3	117.6	13.0	.1	100.9	RETESTED
68	10-13-77	2+75	105D	570.00	6	CL(E)			T	122.5	13.3	3	117.2	13.5	-.2	104.5	
69	10-14-77	2+50	78D	576.00	6	CL(E)			T	118.6	13.1	3	118.0	13.0	.1	100.5	
70	10-14-77	2+70	132D	571.00	6	CL	31	16	T	118.4	13.1	3	119.0	13.1	0.0	99.5	
71	10-15-77	2+96	124D	573.00	6	CL(E)			T	118.4	14.6	3	117.4	13.7	.9	100.9	
72	10-15-77	3+ 8	220D	559.00	6	CL(E)			T	119.9	13.9	3	119.2	13.3	.6	100.6	
73	10-17-77	2+35	48D	579.00	6	CL(E)			T	119.2	13.1	3	118.2	13.0	.1	100.8	
CT-218	10-18-77	5+70	310U	573.00	6	CL(E)			T	115.6	14.4	3	117.6	13.7	.7	98.3	
74	10-18-77	2+45	160D	579.00	6	CL(E)			T	119.9	13.5	3	119.8	12.5	1.0	100.1	
75	10-18-77	9+70	230D	534.00	6	CL(E)			T	117.1	11.3	3	117.8	12.8	-1.5	99.4	
76	10-18-77	10+ 6	15D	537.00	6	CL(E)			T	119.1	12.7	3	119.0	12.8	-.1	100.1	
CT-219	10-19-77	9+86	380U	570.00	6	CL(E)			T	112.1	15.3	3	113.4	15.4	-.1	98.9	
77	10-19-77	9+90	30D	537.00	6	CL			T	120.4	14.5	3	118.8	13.1	1.4	101.3	U-R,SEE 79
78	10-19-77	8+ 0	245D	533.00	6	CL(E)			T	119.0	15.9	3	118.2	13.5	2.4	100.7	U-R,SEE NEXT
CT-220	10-20-77	8+50	395U	577.00	6	CL	40	23	T	112.3	13.6	3	112.4	15.0	-1.4	99.9	
CT-220	10-20-77	8+50	395U	577.00	6	CL	40	23	T	112.3	13.6	5	110.6	15.5	-1.9	101.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
CT-221	10-20-77	9+ 0	360U	575.00	6	CL(E)			T	110.8	13.2	3	110.9	15.4	-2.2	99.9	U--NO ACTION
79	10-20-77	9+90	30D	537.00	6	CL(E)			T	116.2	12.4	3	118.9	12.9	-.5	97.7	RETEST OF 77
80	10-21-77	9+20	260U	557.00	6	CL	34	17	T	116.0	14.1	3	116.2	13.8	.3	99.8	RETEST OF 31
80	10-21-77	9+20	260U	557.00	6	CL	34	17	T	116.0	14.1	5	113.7	14.4	-.3	102.0	RETEST OF 31
81	10-21-77	9+53	100D	539.00	6	CL(E)			T	125.0	11.3	3	121.3	11.8	-.5	103.1	
82	10-21-77	11+47	45U	552.00	6	CL(E)			T	119.7	11.1	3	118.2	12.6	-1.5	101.3	
83	10-21-77	9+50	260U	555.00	6	CL(E)			T	113.5	12.9	3	116.4	13.5	-.6	97.5	
84	10-21-77	9+95	0C	545.00	6	CL(E)			T	121.9	11.7	3	120.4	12.2	-.5	101.2	
85	8-19-78	11+ 5	160U	552.00	6	CL(E)			T	118.1	12.4	3	117.5	12.8	-.4	100.5	
86	8-19-78	10+ 0	180U	554.00	6	CL(E)			T	118.0	12.2	3	117.5	13.1	-.9	100.4	
87	8-19-78	11+30	25U	555.00	6	CL(E)			T	120.7	12.0	3	119.0	12.5	-.5	101.4	
88	8-21-78	11+25	200U	551.00	6	CL(E)			T	120.7	11.4	3	119.5	12.2	-.8	101.0	
89	8-21-78	9+50	40U	559.00	6	CL(E)			T	125.4	12.5	3	115.8	12.8	-.3	108.3	
90	8-22-78	10+15	175U	555.00	6	CL(E)			T	113.4	11.9	3	117.6	12.6	-.7	96.4	
91	8-22-78	11+27	79U	556.00	6	CL(E)			T	118.3	11.5	3	119.3	12.5	-1.0	99.2	
92	8-22-78	11+12	124U	556.00	6	CL	32	17	T	118.2	11.4	3	119.8	12.0	-.6	98.7	
93	8-23-78	10+ 0	275D	531.00	6	CL(E)			T	120.5	12.2	3	117.7	12.8	-.6	102.4	
94	8-23-78	10+60	400D	530.00	6	CL(E)			T	114.6	12.2	3	114.2	14.5	-2.3	100.4	U-NO ACTION.
95	8-24-78	10+16	373D	531.00	6	CL(E)			T	108.2	16.4	3	105.7	15.6	.8	102.4	
96	8-24-78	8+50	400D	526.00	6	CL(E)			T	103.0	18.2	3	107.3	18.3	-.1	96.0	

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-			DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION			
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS	
97	8-25-78	8+50	500D	527.00	6	CL(E)			T	107.3	18.4	3	107.7	17.6	.8	99.6		
98	8-25-78	8+50	550D	528.00	6	CL(E)			T	107.4	16.9	3	107.9	16.2	.7	99.5		
100	8-26-78	9+95	405D	528.00	6	CL	38	20	T	111.2	18.6	3	110.0	17.1	1.5	101.1	U-R,REW.	
99	8-26-78	8+31	510D	530.00	6	CL(E)			T	105.4	18.1	3	106.7	18.2	-.1	98.8		
101	8-28-78	8+85	490D	531.00	6	CL(E)			T	111.6	18.2	3	108.9	17.3	.9	102.5		
102	8-28-78	8+15	370D	531.00	6	CL(E)			T	111.4	18.2	3	109.8	16.8	1.4	101.5	U-R,REW.	
103	8-28-78	8+15	600D	532.00	6	CL(E)			T	105.7	19.6	3	107.4	18.0	1.6	98.4	U-R, 104,108	
104	8-29-78	8+15	600D	532.00	6	CL(E)			T	110.5	19.4	3	107.6	17.8	1.6	102.7	CHECK TEST.	
105	8-29-78	10+ 6	265D	533.00	6	CL(E)			T	104.7	19.0	3	106.4	18.3	.7	98.4		
106	8-29-78	9+30	475D	533.00	6	CL(E)			T	105.7	18.3	3	104.6	19.4	-1.1	101.1		
107	[illegible]-30-78	10+20	300D	534.00	6	CL(E)			T	109.7	19.2	3	107.0	18.1	1.1	102.5	U-NO ACTION.	
108	8-30-78	8+15	600D	532.00	6	CL(E)			T	110.3	17.8	3	107.6	17.8	0.0	102.5	RETEST, 103.	
109	8-31-78	9+96	425D	535.00	6	CL(E)			T	107.4	18.8	3	104.6	19.5	-.7	102.7		
110	9- 1-78	9+35	575D	534.00	6	CL	45	26	T	100.8	20.3	3	104.6	19.6	.7	96.4		
111	9- 1-78	10+ 7	240D	535.00	6	CL(E)			T	111.2	14.7	3	107.8	16.1	-1.4	103.2		
112	9- 8-78	9+30	475D	536.00	6	CL(E)			T	104.2	17.7	3	107.0	17.7	0.0	97.4		
113	9- 8-78	8+45	400D	534.00	6	CL(E)			T	101.4	16.9	3	104.4	17.8	-.9	97.1		
114	9- 9-78	10+75	395D	533.00	6	CL(E)			T	108.2	16.5	3	107.7	17.7	-1.2	100.5		
115	9- 9-78	9+40	450D	536.00	6	CL(E)			T	111.8	18.8	3	108.3	17.4	1.4	103.2	U-R SEE 117	
116	9-11-78	10+15	275D	535.00	6	CL(E)			T	113.8	16.1	3	109.2	17.4	-1.3	104.2		

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
117	9-11-78	9+40	450D	536.00	6	CL(E)			T	94.2	20.0	3	103.7	19.2	.8	90.8	U-R,RER.
118	9-11-78	8+18	252D	537.00	6	CL(E)			T	105.1	17.4	3	109.4	16.9	.5	96.1	
119	9-12-78	9+75	425D	537.00	6	CL(E)			T	111.2	15.8	3	110.6	16.0	-.2	100.5	
120	9-12-78	9+ 0	325D	538.00	6	CL	40	22	T	103.1	18.3	3	108.2	17.9	.4	95.3	
120	9-12-78	9+ 0	325D	538.00	6	CL	40	22	T	103.1	18.3	5	108.0	17.4	.9	95.5	
121	9-14-78	9+40	145D	536.00	6	CL(E)			T	104.0	14.1	3	115.0	14.4	-.3	90.4	U-R SEE •122
122	9-15-78	9+40	145D	536.00	6	CL(E)			T	119.6	13.4	3	117.0	13.6	-.2	102.2	RETEST, •121
123	9-15-78	9+20	60D	538.00	6	CL(E)			T	114.1	13.3	3	117.9	13.0	.3	96.8	
124	9-23-78	9+71	203U	557.00	6	CL(E)			T	111.6	15.2	3	113.5	14.2	1.0	98.3	
125	9-25-78	10+21	85U	558.00	6	CL(E)			T	104.0	14.2	3	107.5	17.1	-2.9	96.7	U-R SEE •126
126	9-25-78	10+21	85U	558.00	6	CL(E)			T	108.2	15.9	3	108.4	17.0	-1.1	99.8	RETEST, •125
127	9-25-78	9+50	16U	559.00	6	CL(E)			T	96.8	17.8	3	105.2	19.0	-1.2	92.0	U-R SEE •128
128	9-26-78	9+50	16U	559.00	6	CL(E)			T	113.5	17.4	3	107.7	17.4	0.0	105.4	RETEST, •127
129	9-26-78	9+31	115U	562.00	6	CL(E)			T	100.5	18.1	3	107.5	18.2	-.1	93.5	U-R,RER.
130	9-26-78	9+31	230U	562.00	6	CL	46	24	T	109.7	17.3	3	107.2	17.7	-.4	102.3	
CT-222	9-28-78	8+75	405U	579.00	6	CL(E)			T	119.3	13.0	3	111.0	15.3	-2.3	107.5	U-NO ACTION
CT-223	9-28-78	9+65	394U	575.00	6	CL(E)			T	103.2	23.4	3	103.2	20.9	2.5	100.0	U-R, CT-224
131	9-28-78	9+86	195U	564.00	6	CL(E)			T	109.0	16.6	3	107.2	17.6	-1.0	101.7	
132	9-28-78	10+15	420D	535.00	6	CL(E)			T	112.4	17.3	3	106.8	17.9	-.6	105.2	
CT-224	9-29-78	9+65	394U	575.00	6	CL(E)			T	107.5	17.0	3	106.3	18.4	-1.4	101.1	RET. CT-223

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
CT-225	9-29-78	9+10	400U	579.00	6	CL(E)			T	106.6	19.4	3	100.7	20.5	-1.1	105.9	
133	9-29-78	9+10	345D	539.00	6	CL(E)			T	111.2	14.7	3	109.1	16.7	-2.0	101.9	
134	9-29-78	9+88	120U	569.00	6	CL(E)			T	110.4	18.2	3	108.1	17.5	.7	102.1	
135	10- 5-78	10+16	190D	533.00	6	CL(E)			T	112.3	12.2	3	110.5	16.0	-3.8	101.6	U-R,SEE •137
136	10- 6-78	9+71	65D	539.00	6	CL(E)			T	108.9	16.0	3	109.2	17.1	-1.1	99.7	
137	10- 6-78	10+20	190D	533.00	6	CL(E)			T	117.3	17.0	3	107.0	17.9	-.9	109.6	RETEST, •135
138	10- 7-78	10+41	150D	542.00	6	CL(E)			T	110.1	11.6	3	119.7	11.6	0.0	92.0	U-R 2D REMOVED
139	10- 7-78	9+81	145D	542.00	6	CL(E)			T	124.8	11.7	3	119.2	12.2	-.5	104.7	
140	10- 9-78	10+ 4	257D	541.00	6	CL	25	10	T	121.9	12.0	3	120.9	11.9	.1	100.8	
140	10- 9-78	10+ 4	257D	541.00	6	CL	25	10	T	121.9	12.0	5	119.8	11.9	.1	101.8	
141	10- 9-78	9+93	108D	543.00	6	CL(E)			T	106.2	15.3	3	107.2	17.3	-2.0	99.1	
RS-63	10-18-78	10+ 0	100D	540.00	24	CL	26	11	T	126.8	11.6	5	120.0	12.3	-.7	105.7	R-5
142	10-18-78	10+ 0	10D	547.00	6	CL(E)			T	103.0	21.4	3	103.2	20.3	1.1	99.8	U--NO ACTION
143	10-18-78	10+ 5	10U	557.00	6	CL(E)			T	109.7	18.4	3	105.6	18.1	.3	103.9	
144	10-20-78	9+68	140U	567.00	6	CL(E)			T	108.7	18.9	3	106.2	18.4	.5	102.4	
145	10-20-78	9+50	230U	568.00	6	CL(E)			T	103.9	16.3	3	108.0	18.0	-1.7	96.2	
146	10-21-78	9+60	50U	571.00	6	CL(E)			T	110.3	19.9	3	99.0	21.8	-1.9	111.4	
147	10-21-78	9+50	195U	574.00	6	CL(E)			T	90.2	18.4	3	102.7	19.2	-.8	87.8	U-R,SEE •148
148	10-24-78	9+50	195U	574.00	6	CL(E)			T	110.1	17.5	3	105.0	18.4	-.9	104.9	RETEST, •147
149	10-26-78	9+60	105U	577.00	6	CL(E)			T	107.5	19.9	3	104.2	19.6	.3	103.2	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
150	10-27-78	9+35	181U	580.00	6	CL	47	29	T	99.7	22.6	3	106.2	19.7	2.9	93.9	U-R,SEE •151
151	10-28-78	9+35	180U	580.00	6	CL(E)			T	107.9	19.0	3	104.5	19.5	-.5	103.3	RETEST, •150
152	10-28-78	9+46	30U	581.00	6	CL(E)			T	107.5	19.3	3	105.0	19.9	-.6	102.4	
153	10-30-78	9+72	225U	582.00	6	CL(E)			T	111.4	18.8	3	107.9	18.1	.7	103.2	
154	10-31-78	9+50	70U	583.00	6	CL(E)			T	106.6	19.6	3	105.7	19.0	.6	100.9	
155	11- 1-78	9+49	20U	584.00	6	CL(E)			T	110.8	18.2	3	106.0	18.8	-.6	104.5	
156	7- 7-79	9+74	492D	540.00	6	CL(E)			T	113.2	13.5	3	118.0	12.8	.7	95.9	
157	7- 7-79	9+55	539D	540.00	6	CL(E)			T	118.0	12.4	3	117.3	12.9	-.5	100.6	
158	7- 9-79	8+90	358D	541.00	6	CL(E)			T	118.9	14.3	3	115.3	13.8	.5	103.1	
159	7-10-79	9+45	552D	542.00	6	CL(E)			T	117.9	14.4	3	116.7	13.6	.8	101.0	
160	7-10-79	8+73	492D	542.00	6	CL(E)			T	118.7	13.7	3	117.7	13.1	.6	100.8	
161	7-10-79	9+74	480D	543.00	6	CL	25	11	T	116.4	13.2	3	119.4	12.4	.8	97.5	
161	7-10-79	9+74	480D	543.00	6	CL	25	11	T	116.4	13.2	5	119.4	12.4	.8	97.5	
162	7-16-79	9+50	445D	543.00	6	CL(E)			T	120.4	11.2	3	120.4	11.2	0.0	100.0	
163	7-17-79	8+75	495D	543.00	6	CL(E)			T	121.4	10.7	3	122.3	10.9	-.2	99.3	
164	7-17-79	8+90	465D	542.00	6	CL(E)			T	119.3	10.9	3	119.8	11.8	-.9	99.6	
165	7-17-79	10+35	513D	543.00	6	CL(E)			T	123.8	10.7	3	122.0	11.2	-.5	101.5	
166	7-18-79	8+70	585D	544.00	6	CL(E)			T	117.6	11.4	3	121.0	11.5	-.1	97.2	
167	7-18-79	8+12	319D	541.00	6	CL(E)			T	115.0	12.5	3	119.5	12.2	.3	96.2	
168	7-18-79	8+90	400D	542.00	6	CL(E)			T	113.4	12.3	3	119.7	12.0	.3	94.7	U-NO ACTION.

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
169	7-18-79	9+72	425D	546.00	6	CL(E)			T	121.7	11.1	3	121.0	11.6	-.5	100.6	
170	7-18-79	9+77	630D	546.00	6	CL	30	15	T	117.9	13.7	3	116.5	13.7	0.0	101.2	
171	7-23-79	9+10	320D	546.00	6	CL(E)			T	118.9	12.9	3	115.9	13.8	-.9	102.6	
172	7-23-79	9+36	537D	546.00	6	CL(E)			T	116.8	12.8	3	118.5	12.2	.6	98.6	
173	8-20-79	12+20	540U	514.00	8	CL(E)			T	108.5	18.1	3	107.3	17.8	.3	101.1	
174	8-27-79	14+ 0	400U	514.00	8	CL(E)			T	98.7	19.8	3	102.8	19.6	.2	96.0	
175	8-27-79	12+80	490U	516.00	8	CL(E)			T	108.8	17.3	3	109.0	16.4	.9	99.8	
176	8-28-79	8+54	258D	548.00	8	CL(E)			T	122.2	11.9	3	119.8	12.0	-.1	102.0	
177	8-28-79	8+60	310D	547.00	8	CL(E)			T	117.0	12.9	3	120.4	12.6	.3	97.2	
178	8-28-79	14+70	380U	510.00	8	CL(E)			T	110.5	15.8	3	110.1	16.2	-.4	100.4	
179	8-28-79	13+72	524U	515.00	8	CL(E)			T	113.3	14.6	3	112.5	15.4	-.8	100.7	
180	8-28-79	15+38	437U	511.00	8	CL(E)			T	113.9	15.0	3	112.2	15.2	-.2	101.5	
181	9- 5-79	7+77	136D	552.50	8	CL	25	11	T	120.4	10.7	3	120.6	11.6	-.9	99.8	
181	9- 5-79	7+77	136D	552.50	8	CL	25	11	T	120.4	10.7	5	119.5	12.4	-1.7	100.8	
182	9- 5-79	7+81	171D	552.00	8	CL(E)			T	123.8	10.9	3	120.4	12.0	-1.1	102.8	
183	9- 5-79	7+74	142D	554.00	8	CL(E)			T	117.0	11.4	3	119.3	12.2	-.8	98.1	
184	9- 5-79	7+70	207D	554.00	8	CL(E)			T	109.8	12.6	3	120.2	11.9	.7	91.3	U-NO ACTION.
185	9- 6-79	14+60	490U	515.50	8	CL(E)			T	114.3	14.4	3	113.2	14.8	-.4	101.0	
186	9- 7-79	16+25	590U	514.00	8	CL(E)			T	117.3	13.7	3	116.2	13.9	-.2	100.9	
187	9- 7-79	14+10	610U	516.00	8	CL(E)			T	113.3	17.3	3	105.4	19.0	-1.7	107.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	CLASSIFICATION ATTERBERG LIMITS LL	CLASSIFICATION ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
188	9- 8-79	15+ 6	512U	515.00	8	CL(E)			T	116.9	11.9	3	115.0	13.2	-1.3	101.7	
189	9-10-79	13+28	564U	516.00	8	CL(E)			T	120.4	11.4	3	119.7	13.0	-1.6	100.6	
190	9-10-79	15+30	572U	515.00	8	CL	26	12	T	115.0	10.0	3	120.0	11.4	-1.4	95.8	
191	9-10-79	14+55	450U	516.00	8	CL(E)			T	118.4	14.9	3	119.5	12.0	2.9	99.1	U-R,SEE •194
192	9-10-79	13+ 0	525U	517.00	8	CL(E)			T	122.7	10.9	3	122.0	10.8	.1	100.6	
193	9-11-79	13+50	540U	516.03	8	CL(E)			T	117.2	11.5	3	117.3	12.8	-1.3	99.9	
194	9-11-79	14+55	450U	516.00	8	CL(E)			T	115.8	14.1	3	116.9	13.8	.3	99.1	RETEST, •191
195	9-11-79	12+35	520U	518.00	8	CL	23	8	T	122.1	12.2	3	120.5	12.0	.2	101.3	
196	9-11-79	15+ 0	545U	516.00	8	CL(E)			T	116.3	13.4	3	121.0	12.4	1.0	96.1	
197	9-11-79	12+77	535U	518.00	8	CL(E)			T	119.8	12.2	3	121.0	12.2	0.0	99.0	
198	9-12-79	13+70	475U	519.00	8	CL(E)			T	112.8	13.2	3	116.2	13.2	0.0	97.1	
199	9-12-79	15+75	400U	517.00	8	CL	26	11	T	107.9	7.5	3	122.0	10.8	-3.3	88.4	U-R,SEE •200
199	9-12-79	15+75	400U	517.00	8	CL	26	11	T	107.9	7.5	5	121.6	11.8	-4.3	88.7	U-R,SEE 200
200	9-13-79	15+75	400U	517.00	8	CL(E)			T	121.0	12.8	3	119.8	13.0	-.2	101.0	RETEST, •199
201	9-13-79	15+90	480U	517.00	8	CL(E)			T	112.5	14.7	3	116.8	14.0	.7	96.3	
202	9-13-79	15+80	430U	517.00	8	CL(E)			T	120.1	11.5	3	120.0	12.4	-.9	100.1	
203	9-13-79	14+25	507U	519.00	8	CL(E)			T	116.8	12.8	3	120.3	12.2	.6	97.1	
204	9-14-79	16+85	55U	515.00	8	CL(E)			T	123.2	11.9	3	120.4	13.0	-1.1	102.3	
206	9-14-79	14+95	570U	520.00	8	CL(E)			T	111.0	13.9	3	117.6	13.5	.4	94.4	U-R,SEE •213
207	9-15-79	15+75	405D	517.00	8	CL(E)			T	121.1	11.0	3	119.6	12.3	-1.3	101.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	PI	IN-PLACE DATA PORTION	DRY DENS (PCF)	WC	LAB TEST DATA METHOD	MAX DRY DENS (PCF)	OPT WC	CORRELATION DIFF FROM OPT	PERC COMP	COMMENTS
208	9-15-79	16+50	400D	517.00	8	CL(E)			T	117.7	15.4	3	113.0	14.2	1.2	104.2	U-R,REV.
209	9-17-79	13+12	465U	520.00	8	CL(E)			T	124.0	11.4	3	121.5	12.4	-1.0	102.1	
210	9-17-79	15+27	584U	519.00	8	CL	24	9	T	120.2	11.1	3	120.2	12.0	-.9	100.0	
210	9-17-79	15+27	584U	519.00	8	CL	24	9	T	120.2	11.1	5	119.8	12.2	-1.1	100.3	
211	9-17-79	13+ 3	543U	522.00	8	CL(E)			T	123.1	9.9	3	120.5	11.6	-1.7	102.2	
212	9-17-79	16+11	428U	518.00	8	CL(E)			T	127.7	10.9	3	121.7	11.3	-.4	104.9	
213	9-18-79	14+95	570U	520.00	8	CL(E)			T	119.3	10.6	3	119.8	11.4	-.8	99.6	RETEST, •206
214	9-18-79	14+27	360U	521.00	8	CL(E)			T	124.1	11.6	3	121.0	11.8	-.2	102.6	
215	9-18-79	16+45	316U	519.00	8	CL(E)			T	118.2	12.5	3	121.1	11.6	.9	97.6	
216	9-18-79	16+45	441U	520.00	8	CL(E)			T	120.4	10.6	3	119.5	11.8	-1.2	100.8	
217	9-18-79	13+59	350U	524.00	8	CL(E)			T	119.9	10.5	3	119.8	12.4	-1.9	100.1	
218	9-18-79	15+95	462U	519.00	8	CL(E)			T	120.2	10.5	3	120.5	11.4	-.9	99.8	
RS-164	9-19-79	14+ 0	550U	525.00	24	CL	24	9	T	117.0	9.9	3	120.2	11.5	-1.6	97.3	R-S
RS-164	9-19-79	14+ 0	550U	525.00	24	CL	24	9	T	117.0	9.9	5	119.2	12.0	-2.1	98.2	R-S
RS-223	9-19-79	16+ 0	370U	518.00	18	CL-ML	22	7	T	120.4	11.9	3	121.2	11.7	.2	99.3	R-S
RS-223	9-19-79	16+ 0	370U	518.00	18	CL-ML	22	7	T	120.4	11.9	3	121.2	11.7	.2	99.3	R-S
RS-294	9-19-79	16+ 0	110U	515.00	24	CL	31	16	T	120.2	12.2	3	118.7	12.0	.2	101.3	R-S
RS-294	9-19-79	16+ 0	110U	515.00	24	CL	31	16	T	120.2	12.2	5	117.5	12.6	-.4	102.3	R-S
219	9-19-79	16+65	265D	517.00	8	CL(E)			T	122.4	10.9	3	120.0	11.4	-.5	102.0	
220	9-19-79	16+12	435D	518.00	8	CL	24	10	T	126.7	11.4	3	122.5	11.6	-.2	103.4	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
221	9-20-79	16+30	260D	518.00	8	CL(E)			T	115.8	8.7	3	122.5	11.4	-2.7	94.5	U-R,REW.
222	9-20-79	16+50	375D	519.00	8	CL(E)			T	120.2	12.0	3	120.8	12.2	-.2	99.5	
223	9-20-79	16+50	370D	520.00	8	CL(E)			T	118.3	10.9	3	121.4	11.8	-.9	97.4	
224	9-20-79	16+30	260D	518.00	8	CL(E)			T	123.8	10.5	3	121.5	11.8	-1.3	101.9	
225	9-20-79	16+15	142D	512.00	8	CL(E)			T	123.2	11.4	3	121.0	12.4	-1.0	101.8	
226	9-21-79	16+40	365D	521.00	8	CL(E)			T	117.8	12.5	3	120.1	12.5	0.0	98.1	
227	9-21-79	16+70	220D	520.00	8	CL(E)			T	115.2	15.3	3	117.9	13.6	1.7	97.7	U-R,REW.
228	9-21-79	15+40	210D	520.00	8	CL(E)			T	120.1	13.1	3	120.0	12.6	.5	100.1	
229	9-21-79	14+90	370D	521.00	8	CL(E)			T	121.2	12.9	3	120.0	12.2	.7	101.0	
230	9-21-79	16+31	51D	510.00	8	CL	26	12	T	123.5	12.5	3	120.7	12.4	.1	102.3	
231	9-22-79	16+ 0	342D	522.00	8	CL(E)			T	126.2	11.4	3	120.2	12.6	-1.2	105.0	
232	9-22-79	12+49	493U	525.00	8	CL(E)			T	124.0	11.2	3	119.0	12.5	-1.3	104.2	
233	9-22-79	15+60	450U	522.00	8	CL(E)			T	129.6	11.8	3	120.8	12.3	-.5	107.3	
234	9-22-79	15+ 6	535U	524.00	8	CL(E)			T	118.2	10.2	3	120.0	12.4	-2.2	98.5	U-R,REW.
235	9-24-79	16+46	408U	523.00	8	CL(E)			T	115.2	14.2	3	119.4	12.6	1.6	96.5	U-R,SEE -239
236	9-24-79	13+91	475U	526.00	8	CL(E)			T	120.8	12.8	3	120.8	12.8	0.0	100.0	
237	9-24-79	13+86	502U	526.00	8	CL(E)			T	119.8	10.9	3	119.8	12.2	-1.3	100.0	
238	9-24-79	16+ 5	155U	505.50	8	CL(E)			T	120.0	12.8	3	120.6	12.6	.2	99.5	
239	9-25-79	16+46	408U	526.00	8	CL(E)			T	125.6	12.5	3	123.4	12.6	-.1	101.8	RETEST, -235
240	9-25-79	15+27	518U	529.00	8	CL	30	16	T	112.2	12.4	3	119.8	12.5	-.1	93.7	U-R,SEE -246

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
241	9-25-79	14+ 7	445U	526.00	8	CL(E)			T	117.6	12.5	3	119.8	13.0	-.5	98.2	
242	9-25-79	15+85	93U	505.00	8	CL(E)			T	123.5	11.6	3	123.0	11.0	.6	100.4	
243	9-25-79	13+12	430U	528.00	8	CL(E)			T	124.4	11.4	3	119.7	12.4	-1.0	103.9	
244	9-25-79	16+ 8	185U	523.00	8	CL(E)			T	120.9	14.4	3	118.5	13.8	.6	102.0	
245	9-26-79	15+96	2U	529.00	8	CL(E)			T	118.2	11.7	3	120.1	12.2	-.5	98.4	
246	9-26-79	15+27	518U	506.00	8	CL(E)			T	118.8	13.1	3	119.9	12.9	.2	99.1	RETEST, -240
247	9-26-79	16+20	100U	509.00	8	CL(E)			T	117.0	14.0	3	117.2	13.8	.2	99.8	
248	9-26-79	15+70	415U	529.00	8	CL(E)			T	118.5	11.3	3	119.3	11.8	-.5	99.3	
249	9-26-79	13+27	510U	529.00	8	CL(E)			T	122.4	11.9	3	119.2	12.5	-.6	102.7	
250	9-27-79	15+64	20D	509.00	8	CL(E)			T	110.7	16.9	3	113.8	16.0	.9	97.3	
251	9-27-79	15+84	23D	506.00	8	CL	28	13	T	110.8	13.8	3	118.8	13.6	.2	93.3	U-R,SEE -255
252	9-27-79	13+ 8	480U	528.00	8	CL(E)			T	116.3	12.0	3	119.6	12.5	-.5	97.2	
253	9-27-79	15+ 5	145U	524.00	8	CL(E)			T	122.7	12.4	3	118.5	13.1	-.7	103.5	
254	9-27-79	14+45	453U	530.00	8	CL(E)			T	119.4	10.9	3	120.6	12.6	-1.7	99.0	
255	9-28-79	15+84	23D	506.00	8	CL(E)			T	108.9	13.0	3	118.8	13.6	-.6	91.7	U-R,SEE -264
256	9-28-79	15+68	76U	511.00	8	CL(E)			T	115.3	12.4	3	119.5	13.0	-.6	96.5	
257	9-28-79	13+70	440U	531.00	8	CL(E)			T	120.2	13.1	3	121.0	12.8	.3	99.3	
258	9-28-79	15+33	395U	530.00	8	CL(E)			T	122.1	11.4	3	12C.4	12.2	-.8	101.4	
259	9-28-79	16+ 0	20D	510.00	8	CL(E)			T	118.9	12.7	3	118.8	12.6	.1	100.1	
260	9-28-79	16+70	375U	512.00	8	CL	32	16	T	118.9	13.7	3	119.4	13.0	.7	99.6	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
261	9-29-79	15+55	484U	529.00	8	CL(E)			T	117.3	10.5	3	120.6	11.5	-1.0	97.3	
262	9-29-79	15+20	115D	508.00	8	CL(E)			T	114.4	13.1	3	119.7	12.9	.2	95.6	
263	9-29-79	13+60	485U	531.00	8	CL(E)			T	114.4	9.2	3	120.2	11.0	-1.8	95.2	
264	9-29-79	15+84	23D	506.00	8	CL(E)			T	119.8	12.7	3	118.9	12.9	-.2	100.8	RETEST, -255
RS295	10- 1-79	16+50	0D	512.00	6	CL	26	11	T	122.5	11.9	5	120.4	12.4	-.5	101.7	R-S
RS295	10- 1-79	16+50	0D	512.00	6	CL	26	11	T	122.5	11.9	3	119.2	12.6	-.7	102.8	R-S
265	10- 1-79	15+50	90D	508.00	8	CL			T	112.3	13.1	3	119.0	13.2	-.1	94.4	U-R,REW & RER
266	10- 1-79	16+32	70D	511.00	8	CL			T	117.5	12.2	3	117.8	13.3	-1.1	99.7	
267	10- 1-79	17+ 0	300U	514.00	8	CL			T	121.0	11.9	3	121.0	12.2	-.3	100.0	
268	10- 1-79	16+75	391U	515.00	8	CL			T	120.0	11.2	3	119.2	12.4	-1.2	100.7	
RS296	10- 2-79	15+50	110D	508.00	8	CL	26	12	T	111.7	11.2	3	116.4	12.7	-1.5	96.0	R-S
RS296	10- 2-79	15+50	110D	508.00	8	CL	26	12	T	111.7	11.2	5	118.5	12.8	-1.6	94.3	R-S
269	10- 2-79	17+20	125U	513.00	8	CL			T	118.3	12.7	3	117.6	13.4	-.7	100.6	
270	10- 2-79	15+80	30U	513.00	8	CL	26	12	T	121.0	12.5	3	118.6	13.3	-.8	102.0	
271	10- 2-79	16+30	460U	532.00	8	CL			T	120.0	12.4	3	120.9	12.8	-.4	99.3	
272	10- 2-79	16+95	380U	532.00	8	CL			T	117.6	11.7	3	118.3	13.0	-1.3	99.4	
273	10- 2-79	17+22	96U	513.00	8	CL			T	110.0	14.5	3	114.9	14.2	.3	95.7	
RS192	10- 3-79	15+ 0	480U	532.00	6	CL	25	9	T	115.5	13.5	3	118.5	13.2	.3	97.5	R-S
RS192	10- 3-79	15+ 0	480U	532.00	6	CL	25	9	T	115.5	13.5	5	119.5	12.6	.9	96.7	R-S
RS226	10- 3-79	16+ 0	450U	529.00	6	CL	26	10	T	123.4	10.9	3	121.0	11.9	-1.0	102.0	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS LL	CLASSIFICATION: ATTERBERG LIMITS PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS226	10- 3-79	16+ 0	450U	529.00	6	CL	26	10	T	123.4	10.9	5	122.0	12.0	-1.1	101.1	R-S
274	10- 3-79	16+50	335U	526.00	8	CL			T	116.9	11.0	3	120.5	12.2	-1.2	97.0	
275	10- 3-79	17+ 4	356U	528.00	8	CL			T	119.6	10.6	3	122.8	11.4	-.8	97.4	
276	10- 3-79	17+13	24U	514.00	8	CL			T	116.1	14.7	3	116.5	14.8	-.1	99.7	
RS138	10- 4-79	12+75	450U	531.00	6	CL	28	12	T	116.9	13.4	5	119.0	12.8	.6	98.2	R-S
RS138	10- 4-79	12+75	450U	531.00	6	CL	28	12	T	116.9	13.4	3	120.0	12.4	1.0	97.4	R-S
RS165	10- 4-79	14+ 0	410U	534.00	6	CL	25	10	T	121.0	12.6	3	120.6	12.6	0.0	100.3	R-S
RS165	10- 4-79	14+ 0	410U	534.00	6	CL	25	10	T	121.0	12.6	5	118.9	12.4	.2	101.8	R-S
277	10- 4-79	15+59	60D	516.00	8	CL			T	110.3	15.2	3	110.0	17.5	-2.3	100.3	U-RSEE277A
278	10- 4-79	16+60	535U	535.00	8	CL			T	115.0	11.6	3	121.1	12.3	-.7	95.0	
279	10- 4-79	17+20	44D	516.00	8	CL	28	13	T	118.4	12.1	5	117.6	13.7	-1.6	100.7	
279	10- 4-79	17+20	44D	516.00	8	CL	28	13	T	118.4	12.1	3	118.0	12.6	-.5	100.3	
280	10- 4-79	16+55	403U	535.00	8	CL	22	7	T	118.5	10.4	3	121.1	11.7	-1.3	97.9	
281	10- 4-79	14+78	462U	535.00	8	CL			T	119.9	12.6	3	121.0	12.4	.2	99.1	
282	10- 4-79	17+10	130D	517.00	8	CL			T	109.5	15.0	3	113.9	14.8	.2	96.1	
277A	10- 5-79	15+59	60D	516.00	8	CL			T	98.7	23.5	3	104.1	20.6	2.9	94.8	U-R,SEE277B
283	10- 5-79	16+98	540U	534.00	8	CL			T	122.9	12.9	3	117.4	13.4	-.5	104.7	
284	10- 5-79	16+10	360U	534.00	8	CL			T	116.5	13.4	3	119.0	12.8	.6	97.9	
285	10- 5-79	17+15	350U	536.00	8	CL			T	118.3	12.6	3	118.5	13.0	-.4	99.8	
286	10- 5-79	13+80	405U	532.00	8	CL			T	117.3	10.6	3	117.4	12.4	-1.8	99.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
287	10- 5-79	17+25	475U	534.00	8	CL			T	119.0	12.0	3	120.2	12.6	-.6	99.0	
277B	10- 6-79	15+59	60D	516.00	8	CL			T	104.4	18.0	3	107.9	17.8	.2	96.8	RETEST277
288	10- 6-79	17+29	20U	518.00	8	CL			T	115.7	14.9	3	116.2	14.2	.7	99.6	
289	10- 6-79	16+35	485U	536.00	8	CL	25	10	T	117.3	12.9	3	119.3	13.8	-.9	98.3	
290	10- 6-79	13+61	472U	537.00	8	CL			T	115.8	10.4	3	115.8	10.4	0.0	100.0	
291	10- 6-79	15+36	185U	518.00	8	CL			T	116.3	13.8	3	118.0	13.0	.8	98.6	
292	10- 6-79	17+17	55D	518.00	8	CL			T	112.4	16.2	3	113.6	15.2	1.0	98.9	
293	10- 7-79	17+ 9	48D	522.00	8	CL			T	116.3	14.0	3	116.0	15.0	-1.0	100.3	
295	10- 7-79	17+30	105U	519.00	8	CL	23	8	T	118.6	15.2	3	115.3	15.0	.2	102.9	
296	10- 7-79	16+50	200D	516.00	8	CL			T	109.5	16.1	3	112.2	16.2	-.1	97.6	
297	10- 7-79	15+75	190U	522.00	8	CL			T	113.9	14.9	3	110.9	16.2	-1.3	102.7	
298	10- 7-79	16+10	10D	520.00	8	CL			T	115.6	15.1	3	113.8	15.1	0.0	101.6	
299	10- 7-79	15+15	125U	523.00	8	CL			T	113.1	15.9	3	111.8	16.3	-.4	101.2	
RS227	10- 8-79	16+ 0	320U	530.00	6	CL	26	11	T	118.8	13.1	3	117.9	13.4	-.3	100.8	R-S
RS227	10- 8-79	16+ 0	320U	530.00	6	CL	26	11	T	118.8	13.1	5	118.8	13.0	.1	100.0	R-S
300	10- 8-79	16+85	150D	519.00	8	CL	33	18	T	112.3	12.5	3	111.5	14.2	-1.7	100.7	
300	10- 8-79	16+85	150D	519.00	8	CL	33	18	T	112.3	12.5	5	112.2	14.9	-2.4	100.1	
301	10- 8-79	15+40	18U	524.00	8	CL			T	112.9	12.5	3	113.5	13.8	-1.3	99.5	
302	10- 8-79	16+40	210D	520.00	8	CL			T	121.3	11.9	3	115.1	13.8	-1.9	105.4	
303	10- 8-79	16+60	70D	522.00	8	CL			T	112.4	14.1	3	113.8	14.6	-.5	98.8	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

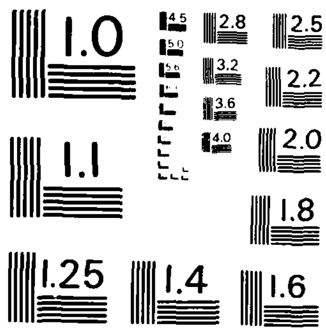
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
304	10- 8-79	15+ 3	220D	524.00	8	CL			T	113.3	14.0	3	110.2	15.8	-1.8	102.8	
RS224	10- 9-79	16+ 0	200U	520.00	6	CL	37	20	T	114.5	15.1	3	107.2	16.0	-.9	106.8	R-S
RS224	10- 9-79	16+ 0	200U	520.00	6	CL	37	20	T	114.5	15.1	5	106.2	15.0	.1	107.8	R-S
RS225	10- 9-79	16+ 0	200D	520.00	6	CL			T	116.7	12.4	3	114.0	14.4	-2.0	102.4	R-S
RS225	10- 9-79	16+ 0	200D	520.00	6	CL			T	116.7	12.4	5	113.8	14.2	-1.8	102.5	R-S
RS297	10- 9-79	16+ 0	0D	520.00	6	CL			T	107.2	17.3	3	111.9	16.4	.9	95.8	R-S
RS297	10- 9-79	16+ 0	0D	520.00	6	CL			T	107.2	17.3	5	112.0	16.6	.7	95.7	R-S
305	10- 9-79	17+40	0D	525.00	8	CL			T	113.6	16.0	3	114.4	15.0	1.0	99.3	
306	10- 9-79	14+75	450U	536.00	8	CL-ML	22	5	T	110.9	14.9	3	113.8	13.9	1.0	97.5	
307	10-10-79	14+ 4	420U	535.00	8	CL			T	112.9	11.3	3	119.7	12.1	-.8	94.3	U-R,REW & RER
308	10-10-79	16+84	377U	541.00	8	CL			T	110.1	16.0	3	113.6	15.7	.3	96.9	
309	10-16-79	15+75	495U	536.00	8	CL			T	117.0	11.2	3	119.1	12.4	-1.2	98.2	
310	10-10-79	16+50	25U	512.00	8	CL			T	110.1	12.7	3	113.6	14.2	-1.5	96.9	
311	10-10-79	15+ 0	458U	538.00	8	CL			T	109.7	13.1	3	115.5	13.1	0.0	95.0	
312	10-10-79	15+60	380U	537.00	8	CL			T	118.8	12.8	3	117.0	13.0	-.2	101.5	
313	10-10-79	16+50	22U	514.00	8	CL			T	114.1	13.2	3	115.0	13.7	-.5	99.2	
314	10-11-79	15+50	160U	526.00	8	CL			T	104.8	14.0	3	110.5	15.6	-1.6	94.8	U-R,REW & RER
315	10-11-79	15+50	240D	524.00	8	CL			T	123.7	9.8	3	121.4	11.0	-1.2	101.9	
316	10-11-79	15+75	390U	525.00	8	CL			T	107.3	13.3	3	109.0	15.1	-1.8	98.4	
317	10-11-79	16+50	25U	518.00	8	CL			T	114.0	14.7	3	115.5	14.9	-.2	98.7	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
318	10-11-79	17+25	120U	526.00	8	CL			T	113.5	15.2	3	112.5	14.6	.6	100.9	
319	10-12-79	15+ 0	30D	526.00	8	CL			T	107.8	13.8	3	110.8	15.8	-2.0	97.3	
320	10-12-79	16+90	150U	525.00	8	CL	28	13	T	117.5	12.6	5	117.5	13.0	-.4	100.0	
320	10-12-79	16+90	150U	525.00	8	CL	28	13	T	117.5	12.6	3	117.1	12.8	-.2	100.3	
321	10-12-79	16+20	28D	524.00	8	CL			T	118.5	13.7	3	117.5	13.8	-.1	100.9	
322	10-12-79	16+50	400D	523.00	8	CL			T	107.5	12.4	3	113.8	14.2	-1.8	94.5	U-R,REW & RER
325	10-13-79	16+60	25U	527.00	8	CL			T	121.4	13.6	3	117.3	14.0	-.4	103.5	
326	10-13-79	16+50	390D	525.00	8	CL			T	109.1	11.4	3	113.8	14.5	-3.1	95.9	U-RSEE326A
327	10-13-79	15+50	181U	528.00	8	CL			T	109.9	17.6	3	113.2	15.4	2.2	97.1	U-RSEE327A
326A	10-15-79	16+50	390D	525.00	8	CL			T	110.4	13.2	3	114.8	13.8	-.6	96.2	RET 326
328	10-15-79	17+30	20D	529.00	8	CL			T	119.8	12.2	3	117.4	13.4	-1.2	102.0	
329	10-15-79	17+50	75D	530.00	8	CL			T	117.8	13.2	3	119.6	13.6	-.4	98.5	
331	10-16-79	17+50	0D	532.00	8	CL	27	11	T	112.4	12.7	3	118.1	13.3	-.6	95.2	
332	10-17-79	17+30	45D	534.00	8	CL			T	119.5	12.6	3	119.5	13.6	-1.0	100.0	
327A	10-18-79	15+50	181U	528.00	8	CL			T	111.6	16.4	3	109.9	16.5	-.1	101.5	RETEST327
333	10-18-79	14+90	0D	527.00	8	CL			T	100.6	17.1	3	105.4	17.5	-.4	95.4	
334	10-18-79	16+50	100D	528.00	8	CL			T	112.3	13.6	3	114.5	14.5	-.9	98.1	
335	10-18-79	17+30	30U	534.00	8	CL			T	113.7	15.7	3	113.6	14.8	.9	100.1	
336	10-23-79	16+95	145U	529.00	8	CL			T	105.7	17.8	3	111.9	15.4	2.4	94.5	U-RSEE336A
337	10-23-79	16+55	160D	529.00	8	CL			T	112.3	17.1	3	110.5	16.5	.6	101.6	

AD-A160 525 CLARENCE CANNON DAM AND MARK TWAIN LAKE FOUNDATION AND EMBANKMENT COMPLET..(U) ARMY ENGINEER DISTRICT ST LOUIS MO DEC 84 2/4

UNCLASSIFIED F/G 13/13 NL



MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
338	10-23-79	16+20	150U	528.00	8	CL			T	111.6	16.1	3	112.3	15.4	.7	99.4	
336A	10-24-79	16+95	145U	529.00	8	CL			T	110.1	15.4	3	105.8	17.4	-2.0	104.1	
339	10-24-79	16+25	302D	527.00	8	CL			T	104.0	15.5	3	106.7	16.6	-1.1	97.5	
340	10-24-79	16+38	75D	530.00	8	CL			T	104.7	17.6	3	108.1	17.9	-.3	96.9	
341	10-24-79	16+75	275U	530.00	8	CL	39	22	T	113.4	16.0	3	106.8	16.2	-.2	106.2	
341	10-24-79	16+75	275U	530.00	8	CL	39	22	T	113.4	16.0	5	108.0	17.5	-1.5	105.0	
342	10-25-79	15+50	370U	526.00	8	CL			T	116.2	15.1	3	116.4	14.2	.9	99.8	
343	10-25-79	15+75	50U	527.00	8	CL			T	106.5	19.3	3	105.7	18.2	1.1	100.8	U-NO ACTION
345	10-25-79	15+30	240D	528.00	8	CL			T	105.6	17.8	3	107.3	17.8	0.0	98.4	
346	10-25-79	15+90	10U	527.00	8	CL	32	15	T	105.3	16.7	3	108.0	16.6	.1	97.5	
347	10-25-79	16+75	75D	532.00	8	CL			T	110.9	16.1	3	109.2	16.2	-.1	101.6	
348	10-25-79	14+ 0	325U	530.00	8	CL			T	105.1	16.4	3	106.1	16.8	-.4	99.1	
349	10-25-79	16+50	25U	533.00	8	CL			T	111.3	18.1	3	108.6	16.6	1.5	102.5	U-R,MAT. REM.
350	10-25-79	16+85	225U	534.00	8	CL			T	112.7	16.2	3	106.3	17.[illegible]	-1.4	106.0	
354	10-26-79	15+70	0D	528.00	8	CL	36	20	T	111.2	17.5	3	107.8	17.1	.4	103.2	
355	10-26-79	15+80	110D	528.00	8	CL			T	108.9	17.9	3	108.8	18.0	-.1	100.1	
356	10-26-79	16+51	25U	536.00	8	CL			T	103.4	16.3	3	109.9	16.2	.1	94.1	U-R,MAT. REM.
358	10-27-79	15+70	187U	532.00	8	CL			T	107.0	17.6	3	110.0	17.0	.6	97.3	
359	10-27-79	17+ 9	305D	536.00	8	CL	36	21	T	107.0	16.0	3	108.0	16.9	-.9	99.1	
359	10-27-79	17+ 9	305D	536.00	8	CL	36	21	T	107.0	16.0	5	109.0	17.0	-1.0	98.2	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
360	10-27-79	16+92	280U	538.00	8	CL			T	113.0	13.9	3	112.6	15.1	-1.2	100.4	
362	10-27-79	16+55	137U	536.00	8	CL			T	108.6	15.7	3	109.5	15.7	0.0	99.2	
363	10-27-79	15+92	2U	532.00	8	CL			T	107.3	17.5	3	109.7	17.1	.4	97.8	
364	10-27-79	15+30	271D	531.00	8	CL			T	108.0	13.1	3	111.3	15.7	-2.6	97.0	U-R SEE364A
RS193	10-29-79	15+ 0	0D	530.00	6	CL	37	21	T	107.5	19.1	3	107.8	17.8	1.3	99.7	R-S U-NO ACTION
RS194	10-29-79	15+ 0	200D	530.00	6	CL	37	20	T	105.2	17.2	3	108.2	17.0	.2	97.2	R-S
RS194	10-29-79	15+ 0	200D	530.00	6	CL	37	20	T	105.2	17.2	5	108.8	17.3	-.1	96.7	R-S
RS228	10-29-79	16+ 0	120U	530.00	6	CL	36	19	T	108.5	17.0	5	108.6	17.4	-.4	99.9	R-S
RS228	10-29-79	16+ 0	120U	530.00	6	CL	36	19	T	108.5	17.0	3	110.0	17.8	-.8	98.6	R-S
RS229	10-29-79	16+ 0	0D	530.00	6	CL	38	21	T	109.2	18.9	5	110.3	17.8	1.1	99.0	R-S
RS229	10-29-79	16+ 0	0D	530.00	6	CL	38	21	T	109.2	18.9	3	110.3	17.9	1.0	99.0	R-S
364A	10-29-79	15+30	271D	531.00	8	CL			T	110.2	16.9	3	109.0	17.7	-.8	101.1	RETEST364
365	10-29-79	13+21	438U	538.00	8	CL			T	109.4	15.6	3	111.6	15.9	-.3	98.0	
366	10-29-79	16+80	110D	532.00	8	CL			T	107.4	18.4	3	111.5	17.3	1.1	96.3	U-NO ACTION
367	10-30-79	16+50	110U	534.00	8	CL			T	110.6	16.0	3	112.4	16.0	0.0	98.4	
368	10-30-79	14+ 0	0D	537.00	8	CL			T	110.7	17.3	3	110.8	17.0	.3	99.9	
369	10-30-79	15+50	120U	531.00	8	CL			T	111.7	15.6	3	110.0	15.1	.5	101.5	
370	10-30-79	14+20	450U	539.00	8	CL	34	19	T	109.0	15.4	3	111.1	15.8	-.4	98.1	
371	10-30-79	16+90	150D	534.00	8	CL			T	110.5	16.8	3	110.2	15.6	1.2	100.3	U-NOACTION
372	11- 1-79	16+50	250D	536.00	8	CL			T	110.7	17.9	3	109.8	16.9	1.0	100.8	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	DRY DENS (PCF)	WC	LAB TEST DATA METHOD	MAX DRY DENS (PCF)	OPT WC	CORRELATION DIFF FROM OPT	PERC COMP	COMMENTS
373	11- 1-79	16+65	385U	537.00	8	CL			T	111.1	16.0	3	112.3	14.7	1.3	98.9	U-R,REW & RER
374	11- 1-79	17+40	110U	539.00	8	CL			T	112.0	14.8	3	109.9	15.0	-.2	101.9	
376	11- 2-79	16+60	25U	538.00	8	CL			T	105.5	14.7	3	110.8	15.4	-.7	95.2	
377	11- 2-79	16+75	0D	537.00	8	CL			T	113.9	14.4	3	107.9	15.9	-1.5	105.6	
378	11- 2-79	16+50	20D	537.00	8	CL			T	102.1	15.6	3	109.2	16.2	-.6	93.5	U-RSEE378A
379	11- 2-79	17+ 5	225U	546.00	8	CL	34	19	T	115.1	11.9	5	115.0	14.1	-2.2	100.1	
379	11- 2-79	17+ 5	225U	546.00	8	CL	34	19	T	115.1	11.9	3	114.8	13.7	-1.8	100.3	
380	11- 2-79	16+98	10D	542.00	8	CL			T	113.2	13.9	3	115.6	14.4	-.5	97.9	
381	11- 2-79	17+10	192D	543.00	8	CL			T	121.4	12.2	3	120.9	13.1	-.9	100.4	
378A	11- 3-79	16+50	20D	537.00	8	CL			T	115.4	12.9	3	115.0	14.1	-1.2	100.3	R,TEST378
382	11- 3-79	17+45	178U	547.00	8	CL			T	119.7	12.6	3	113.5	14.3	-1.7	105.5	
383	11- 3-79	16+45	284D	540.00	8	CL			T	114.8	14.7	3	117.0	14.2	.5	98.1	
384	11- 3-79	17+ 0	52U	544.00	8	CL			T	114.9	13.8	3	117.1	14.2	-.4	98.1	
385	11- 3-79	16+49	26U	539.00	8	CL			T	114.4	13.7	3	113.2	14.2	-.5	101.1	
386	11- 3-79	16+67	45D	539.00	8	CL			T	115.2	14.6	3	109.2	15.5	-.9	105.5	
387	11- 3-79	17+70	35U	548.00	8	CL			T	111.3	17.3	3	110.5	17.4	-.1	100.7	
388	11- 5-79	17+75	375U	549.00	8	CL			T	114.1	13.0	3	116.8	13.9	-.9	97.7	
389	11- 5-79	17+60	185U	548.00	8	CL			T	121.3	12.8	3	117.7	13.0	-.2	103.1	
390	11- 5-79	16+98	275D	546.00	8	CL	25	9	T	113.4	13.2	3	118.0	13.1	.1	96.1	
391	11- 5-79	17+65	112D	548.00	8	CL			T	116.2	13.2	3	117.2	13.9	-.7	99.1	

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-			DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
392	11- 5-79	17+65	128U	549.00	8	CL			T	110.9	15.1	3	113.0	15.4	-.3	98.1	
393	11- 5-79	16+83	430D	545.00	8	CL			T	108.7	18.1	3	110.1	16.6	1.5	98.7	U-RSEE393A
393A	11- 6-79	16+83	430D	545.00	8	CL			T	116.3	14.1	3	117.6	13.6	.5	98.9	R,TEST 393
394	11- 6-79	15+ 0	175U	536.00	8	CL			T	106.9	18.9	3	109.6	17.6	1.3	97.5	U-R,REW & RER
395	11- 6-79	15+80	78D	535.00	8	CL			T	103.1	17.5	3	106.0	18.2	-.7	97.3	
396	11- 6-79	15+25	377D	532.00	8	CL			T	106.4	17.2	3	107.1	17.9	-.7	99.3	
397	11- 6-79	15+49	113U	537.00	8	CL			T	104.1	17.4	3	105.4	17.8	-.4	98.8	
398	11- 6-79	16+25	20U	535.00	8	CL			T	106.0	20.8	3	107.9	18.2	2.6	98.2	U-R,MAT. RER.
399	11- 6-79	15+70	150D	535.00	8	CL			T	104.2	17.1	3	109.1	17.2	-.1	95.5	
RS230	11- 7-79	16+ 0	300D	533.00	8	CL	42	26	T	105.8	17.8	3	107.5	17.2	.6	98.4	R-S
RS230	11- 7-79	16+ 0	300D	533.00	8	CL	42	26	T	105.8	17.8	5	108.0	17.8	0.0	98.0	R-S
RS231	11- 7-79	16+ 0	450D	534.00	8	CL	30	16	T	123.5	13.6	3	116.0	14.0	-.4	106.5	R-S
RS231	11- 7-79	16+ 0	450D	534.00	8	CL	30	16	T	123.5	13.6	5	116.9	13.5	.1	105.6	R-S
400	11- 7-79	16+25	55U	538.00	8	CL			T	112.8	17.7	3	109.1	17.1	.6	103.4	
401	11- 7-79	15+90	305U	540.00	8	CL			T	109.3	17.7	3	107.8	18.1	-.4	101.4	
402	11- 7-79	15+40	100U	534.00	8	CL	38	22	T	106.6	17.0	5	109.1	16.6	.4	97.7	
402	11- 7-79	15+40	100U	534.00	8	CL	38	22	T	106.6	17.0	3	108.7	16.8	.2	98.1	
403	11-14-79	15+75	350D	533.00	8	CL			T	105.2	19.0	3	104.9	18.9	.1	100.3	
404	11-14-79	15+30	155D	532.00	8	CL			T	110.3	17.5	3	105.0	18.3	-.8	105.0	
405	11-14-79	15+25	185U	534.00	8	CL			T	108.5	17.7	3	107.1	17.3	.4	101.3	

PROJECT-		RIVER-		STATE-			TOWN-				CONTRACT NO.-				CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
RS195	11-15-79	15+ 0	400D	530.00	8	CL	41	25	T	114.1	17.3	5	107.5	18.0	-.7	106.1	R-S
RS195	11-15-79	15+ 0	400D	530.00	8	CL	41	25	T	114.1	17.3	3	108.8	17.8	-.5	104.9	R-S
RS232	11-15-79	16+ 0	100D	535.00	8	CL	41	24	T	105.2	17.4	3	107.0	17.4	0.0	98.3	R-S
RS232	11-15-79	16+ 0	100D	535.00	8	CL	41	24	T	105.2	17.4	5	106.2	18.2	-.8	99.1	R-S
407	11-15-79	14+75	400D	534.00	8	CL			T	113.3	16.7	3	110.1	16.8	-.1	102.9	
408	11-15-79	14+80	300U	538.00	8	CL			T	108.2	18.4	3	108.6	17.4	1.0	99.6	
409	11-15-79	14+75	475U	541.00	8	CL			T	110.2	19.5	3	109.0	17.7	1.8	101.1	U-R,REW & RER
410	11-15-79	14+65	0D	537.00	8	CL	31	12	T	111.0	17.6	3	110.7	15.8	1.8	100.3	U-RSEE410A
410A	11-16-79	14+65	0D	537.00	8	CL			T	106.9	17.7	3	109.8	17.8	-.1	97.4	R,TEST410
411	11-16-79	14+65	210D	537.00	8	CL	34	18	T	108.3	16.4	3	110.7	16.5	-.1	97.8	
411	11-16-79	14+65	210D	537.00	8	CL	34	18	T	108.3	16.4	5	110.5	16.4	0.0	98.0	
412	11-16-79	16+ 5	10D	538.00	8	CL			T	109.9	16.4	3	109.0	16.7	-.3	100.8	
413	11-16-79	14+90	150U	539.00	8	CL			T	111.3	16.8	3	108.2	16.2	.6	102.9	
414	11-16-79	16+50	380D	538.00	8	CL			T	110.4	18.2	3	109.9	17.0	1.2	100.5	U-R,REW & RER
415	11-16-79	16+40	100D	539.00	8	CL			T	112.7	17.0	3	111.1	16.2	.8	101.4	
416	11-17-79	15+10	150D	538.00	8	CL			T	112.3	16.3	3	110.5	16.0	.3	101.6	
417	11-17-79	15+20	90U	539.00	8	CL			T	111.6	15.3	3	110.5	16.0	-.7	101.0	
418	11-17-79	16+ 5	175U	542.00	8	CL			T	109.6	17.3	3	109.6	17.4	-.1	100.0	
419	11-17-79	17+25	375U	552.00	8	CL			T	111.0	18.4	3	110.2	16.4	2.0	100.7	R,TEST
420	11-17-79	17+50	300D	551.00	8	CL	34	18	T	108.5	18.1	5	110.5	16.6	1.5	98.2	R,TEST

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
420	11-17-79	17+50	300D	551.00	8	CL	34	18	T	108.5	18.1	3	110.7	16.7	1.4	98.0	R,TEST
421	11-19-79	15+90	155D	539.00	8	CL			T	109.8	16.5	3	106.3	17.7	-1.2	103.3	
422	11-19-79	15+80	40D	539.00	8	CL			T	113.3	16.2	3	112.5	15.8	.4	100.7	
423	11-27-79	11+90	540D	523.00	8	CL			T	113.3	16.7	3	112.9	15.9	.8	100.4	
424	4-23-80	16+60	450D	540.00	8	CL			T	107.7	16.7	3	108.2	17.1	-.4	99.5	
425	4-24-80	8+16	202D	552.00	8	CL			T	107.0	17.7	3	109.0	17.2	.5	98.2	
426	4-24-80	8+90	305D	552.00	8	CL			T	105.5	18.4	3	109.2	17.0	1.4	96.6	U-R,RET.LAT.
427	4-25-80	12+40	540D	522.00	8	CL			T	115.3	15.9	3	113.1	15.4	.5	101.9	
428	4-29-80	11+25	540D	525.00	8	CL			T	111.9	16.3	3	112.6	16.2	.1	99.4	
429	4-29-80	11+80	480D	528.00	8	CL			T	106.9	16.3	3	113.8	15.6	.7	93.9	U-R,SEE 429A
430	4-29-80	12+20	425D	529.00	8	CL	25	9	T	108.9	14.5	3	113.7	14.8	-.3	95.8	
429A	4-30-80	11+80	480D	528.00	8	CL			T	114.7	15.2	3	113.8	15.7	-.5	100.8	RET. 429
431	4-30-80	12+80	483D	529.00	8	CL			T	113.6	13.1	3	113.6	15.0	-1.9	100.0	
432	4-30-80	11+10	452D	530.00	8	CL			T	110.1	16.5	3	111.9	15.8	.7	98.4	
433	4-30-80	11+12	548D	528.00	8	CL			T	114.0	15.2	3	111.8	16.0	-.8	102.0	
434	4-30-80	12+50	487D	530.00	8	CL			T	112.9	15.5	3	113.4	16.0	-.5	99.6	
435	5- 1-80	11+75	495D	531.00	8	CL			T	111.0	15.4	3	112.3	15.6	-.2	98.9	
436	5- 2-80	13+ 7	547D	528.00	8	CL			T	110.3	15.1	3	112.3	.4.6	.5	98.2	
437	5- 2-80	11+13	419D	533.00	8	CL			T	109.8	14.0	3	112.9	13.5	.5	97.3	
438	5- 2-80	11+22	552D	530.00	8	CL	26	9	T	116.5	13.0	3	116.3	13.8	-.8	100.2	

PROJECT-			RIVER-			STATE-				TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION			
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS	
438	5- 2-80	11+22	552D	530.00	8	CL	26	9	T	116.5	13.0	5	115.2	13.2	-.2	101.1		
439	5- 2-80	12+14	529D	530.00	8	CL			T	110.3	14.1	3	112.7	15.0	-.9	97.9		
440	5- 3-80	13+42	403D	531.00	8	CL			T	114.1	13.4	3	115.2	14.5	-1.1	99.0		
441	5- 3-80	11+65	488D	533.00	8	CL			T	115.1	12.9	3	118.1	13.0	-.1	97.5		
442	5- 3-80	13+34	538D	531.00	8	CL			T	111.8	14.8	3	116.2	13.9	.9	96.2		
443	5- 3-80	11+35	484D	535.00	8	CL			T	110.6	13.8	3	116.7	13.2	.6	94.8	U,NO ACT.	
444	5- 3-80	15+28	441D	534.00	8	CL			T	106.9	18.1	3	110.5	16.4	1.7	96.7	U-R,SEE 444A	
445	5- 3-80	12+19	431D	536.00	8	CL			T	107.5	16.9	3	112.1	15.3	1.6	95.9	U-R,SEE445A	
446	5- 5-80	12+88	369U	541.00	8	CL			T	106.6	14.3	3	112.7	14.5	-.2	94.6	U-R,MAT. REW.	
447	5- 5-80	14+19	410U	542.00	8	CL			T	104.5	14.3	3	109.7	16.1	-1.8	95.3		
448	5- 5-80	13+ 5	385U	540.00	8	CL			T	105.8	13.4	3	115.2	13.1	.3	91.8	U-R,SEE448A	
449	5- 5-80	14+36	300U	539.00	8	CL			T	111.1	14.0	3	115.1	13.4	.6	96.5		
444A	5- 6-80	15+28	441D	534.00	8	CL			T	106.4	14.7	3	111.9	15.2	-.5	95.1	RET. 444	
445A	5- 6-80	12+19	431D	536.00	8	CL			T	111.4	12.9	3	116.8	13.5	-.6	95.4	RET. 445	
448A	5- 6-80	13+ 5	385U	540.00	8	CL			T	110.1	15.1	3	113.5	15.0	.1	97.0	RET.448	
450	5- 6-80	12+62	347U	541.00	8	CL	28	12	T	110.7	14.4	3	116.0	14.0	.4	95.4		
451	5- 6-80	15+ 2	451U	543.00	8	CL			T	109.7	13.5	3	112.8	15.2	-1.7	97.3		
452	5- 6-80	16+21	295U	542.00	8	CL			T	113.1	12.7	3	113.2	14.4	-1.7	99.9		
453	5- 6-80	14+29	441U	542.00	8	CL			T	107.3	12.4	3	112.2	14.1	-1.7	95.6		
454	5- 7-80	15+30	140U	540.00	8	CL			T	105.3	12.9	3	112.6	15.1	-2.2	93.5	U-R,SEE 454A	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
455	5- 7-80	15+10	410U	542.00	8	CL			T	108.9	13.5	3	113.1	14.4	-.9	96.3	
456	5- 7-80	16+65	320U	541.00	8	CL			T	113.4	13.5	3	115.5	14.1	-.6	98.2	
457	5- 7-80	11+75	395U	542.00	8	CL			T	110.4	13.6	3	112.3	15.5	-1.9	98.3	
458	5- 7-80	14+75	250U	539.00	8	CL			T	107.3	12.7	3	112.1	14.6	-1.9	95.7	
459	5- 7-80	15+26	9D	539.00	8	CL			T	107.7	14.9	3	112.6	15.9	-1.0	95.6	
460	5- 7-80	15+98	34U	541.30	8	CL	32	14	T	109.7	15.6	5	110.8	16.2	-.6	99.0	
460	5- 7-80	15+98	34U	541.00	8	CL	32	14	T	109.7	15.6	3	111.3	15.7	-.1	98.6	
454A	5- 8-80	15+30	140U	540.00	8	CL			T	116.5	13.1	3	114.8	13.8	-.7	101.5	RET. OF 454
461	5- 8-80	15+40	305U	540.00	8	CL			T	107.7	13.0	3	115.2	13.8	-.8	93.5	U-R,SEE461A
462	5- 8-80	13+ 6	490U	540.00	8	CL			T	107.6	11.4	3	115.6	13.2	-1.8	93.1	U-R,SEE462A
463	5- 8-80	16+30	460U	541.00	8	CL			T	111.0	12.7	3	117.9	12.7	0.0	94.1	U-R,SEE463A
464	5- 8-80	15+45	30U	540.00	8	CL			T	113.2	14.0	3	112.6	15.5	-1.5	100.5	
465	5- 8-80	15+60	260D	539.00	8	CL			T	112.1	17.5	3	114.1	15.4	2.1	98.2	U-R,SEE465A
465A	5- 9-80	15+60	260D	539.00	8	CL			T	116.7	15.0	3	114.1	14.8	.2	102.3	RET.OF465
463A	5-14-80	16+30	460U	541.00	8	CL	27	11	T	116.8	12.8	3	117.2	12.8	0.0	99.7	RET. OF463
461A	6- 6-80	15+40	305U	540.00	8	CL			T	115.9	12.9	3	116.5	13.5	-.6	99.5	RET. OF 461
462A	6- 6-80	13+ 6	490U	540.00	8	CL			T	112.4	12.5	3	116.7	13.0	-.5	96.3	RET.OF462
466	6-23-80	16+21	358U	541.00	8	CL			T	117.3	12.1	3	121.0	12.9	-.8	96.9	
467	6-23-80	15+ 3	317D	539.00	8	CL			T	115.9	13.6	3	114.1	13.8	-.2	101.6	
468	6-25-80	13+60	387U	540.00	8	CL			T	106.7	15.2	3	108.5	16.8	-1.6	98.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DR DE' (P)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
469	6-25-80	15+50	330U	541.00	8	CL			T	107.0	15.4	3	107.1	17.0	-1.6	99.9	
470	6-25-80	16+30	225U	542.00	8	CL	27	11	T	115.9	13.2	5	114.0	14.3	-1.1	101.7	
470	6-25-80	16+30	225U	542.00	8	CL	27	11	T	115.9	13.2	3	114.0	14.2	-1.0	101.7	
471	6-25-80	15+75	140D	539.00	8	CL			T	112.4	15.1	3	111.7	15.6	-.5	100.6	
472	6-25-80	15+ 8	399D	538.00	8	CL			T	120.0	12.0	3	115.8	13.6	-1.6	103.6	
RS196	6-26-80	15+ 0	340U	540.00	8	CL	25	11	T	109.5	12.4	3	115.3	13.3	-.9	95.0	R-S
RS196	6-26-80	15+ 0	340U	540.00	8	CL	25	11	T	109.5	12.4	5	115.6	13.1	-.7	94.7	R-S
RS197	6-26-80	15+ 0	210U	540.00	8	CL-ML	23	7	T	124.2	11.8	5	119.7	12.1	-.3	103.8	R-S
RS197	6-26-80	15+ 0	210U	540.00	8	CL-ML	23	7	T	124.2	11.8	3	119.8	11.8	0.0	103.7	R-S
473	6-26-80	11+50	510D	539.00	8	CL			T	115.1	13.6	3	116.4	13.8	-.2	98.9	
474	6-26-80	14+20	250U	541.00	8	CL			T	101.2	21.6	3	105.5	19.2	2.4	95.9	U-R,SEE 474A
475	6-26-80	16+80	00	543.00	8	CL			T	106.1	15.0	3	108.2	16.5	-1.5	98.1	
476	6-26-80	16+30	500U	544.00	8	CL			T	107.5	19.2	3	109.6	17.4	1.8	98.1	U-R,SEE476A
477	6-26-80	14+ 2	550D	538.00	8	CL			T	101.1	22.0	3	104.8	19.4	2.6	96.5	U-R,SEE477A
478	6-26-80	11+18	543D	539.00	8	CL			T	104.2	16.8	3	106.2	17.4	-.6	98.1	
479	6-26-80	14+70	124D	541.00	8	CL			T	110.9	16.1	3	110.0	16.8	-.7	100.8	
474A	6-27-80	14+20	250U	541.00	8	CL			T	108.6	17.4	3	107.4	16.4	1.0	101.1	RET. 474
476A	6-27-80	16+30	500U	544.00	8	CL			T	108.2	17.1	3	109.0	17.2	-.1	99.3	RET. 476
477A	6-27-80	14+ 2	550D	538.00	8	CL			T	107.6	17.4	3	108.4	17.8	-.4	99.3	RET. 477
480	6-27-80	11+20	450U	543.00	8	CL	39	24	T	106.0	18.6	3	108.4	17.3	1.3	97.8	U-R,SEE480A

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	CPT WC	DIFF FROM CPT	PERC COMP	COMMENTS
481	6-27-80	13+70	250U	542.00	8	CL			T	103.4	19.6	3	104.8	19.0	.6	98.7	
482	6-27-80	15+67	77D	541.00	8	CL			T	110.1	17.4	3	106.5	18.2	-.8	103.4	
483	6-27-80	11+78	400D	538.00	8	CL			T	102.9	16.7	3	106.8	18.4	-1.7	96.3	
484	6-27-80	15+ 0	50U	542.00	8	CL			T	105.5	19.2	3	105.0	18.6	.6	100.5	
485	6-28-80	15+60	380D	540.00	8	CL			T	106.4	18.6	3	105.9	18.5	.1	100.5	
486	6-28-80	15+70	50U	543.00	8	CL			T	110.6	13.0	3	108.0	14.8	-1.8	102.4	
487	6-28-80	12+ 0	550D	539.00	8	CL			T	107.2	16.5	3	106.8	18.6	-2.1	100.4	
488	6-28-80	14+65	75D	541.00	8	CL			T	107.4	15.4	3	107.2	16.7	-1.3	100.2	
489	6-28-80	14+40	440U	542.00	8	CL			T	104.4	16.0	3	108.5	15.7	.3	96.2	
490	6-28-80	13+ 0	425D	539.00	8	CL	41	25	T	105.5	20.2	3	109.8	17.0	3.2	96.1	U-R,SEE490A
480A	6-30-80	11+20	450U	543.00	8	CL			T	108.5	18.2	3	108.0	18.3	-.1	100.5	RET. 480
490A	6-30-80	13+ 0	425D	539.00	8	CL			T	105.3	16.1	3	106.3	17.9	-1.8	99.1	RET.490
491	6-30-80	11+25	440D	539.00	8	CL			T	105.5	17.3	3	105.9	18.3	-1.0	99.6	
492	6-30-80	16+70	515U	543.00	8	CL			T	109.4	16.5	3	106.2	16.9	-.4	103.0	
493	6-30-80	15+50	275U	541.00	8	CL			T	109.0	16.7	3	107.9	16.2	.5	101.0	
494	6-30-80	15+85	350U	541.00	8	CL			T	109.4	17.2	3	107.5	17.6	-.4	101.8	
495	6-30-80	15+60	150D	543.00	8	CL			T	106.1	18.9	3	106.2	18.6	.3	99.9	
496	6-30-80	13+60	380D	542.00	8	CL			T	105.4	17.1	3	108.2	17.0	.1	97.4	
497	6-30-80	12+80	490U	543.00	8	CL			T	107.5	16.6	3	108.0	17.0	-.4	99.5	
498	7- 1-80	16+ 0	530U	544.00	8	CL			T	108.0	14.7	3	109.0	16.5	-1.8	99.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
499	7- 1-80	14+75	00	543.00	8	CL			T	109.5	16.8	3	107.0	17.0	-.2	102.3	
500	7- 1-80	11+60	492D	539.00	8	CL	36	20	T	102.9	16.1	5	108.0	17.6	-1.5	95.3	
500	7- 1-80	11+60	492D	539.00	8	CL	36	20	T	102.9	16.1	3	107.0	17.2	-1.1	96.2	
501A	7- 1-80	8+75	380D	543.00	8	CL			T	102.2	17.1	3	106.2	17.0	.1	96.2	RET.501,HC
501	7- 1-80	8+75	380D	543.00	8	CL			T	97.2	14.8	3	107.2	16.7	-1.9	90.7	U-R,SEE501A,HC
502	7- 1-80	9+30	310D	550.00	8	CL			T	105.8	18.3	3	108.3	17.1	1.2	97.7	U,REW.
503	7- 1-80	12+15	490U	544.00	8	CL			T	108.0	13.9	3	108.7	15.5	-1.6	99.4	
504	7- 1-80	14+ 0	380D	542.00	8	CL			T	107.8	16.9	3	107.7	16.9	0.0	100.1	
505	7- 1-80	9+20	320D	549.00	8	CL			T	108.4	17.3	3	108.8	17.4	-.1	99.6	
506	7- 1-80	15+ 0	70U	540.00	8	CL	38	21	T	108.5	16.5	3	109.1	17.0	-.5	99.5	
RS198	7- 7-80	15+ 0	70U	540.00	8	CL	30	15	T	110.6	15.9	5	109.6	16.9	-1.0	100.9	R-S
RS199	7- 7-80	15+ 0	100D	540.00	8	CL	41	28	T	111.3	17.6	3	109.2	16.5	1.1	101.9	R-S,NOACT.
RS199	7- 7-80	15+ 0	100D	540.00	8	CL	41	28	T	111.3	17.6	5	108.6	16.9	.7	102.5	R-S
507	7- 7-80	16+ 0	00	543.00	8	CL			T	108.5	16.4	3	108.1	16.9	-.5	100.4	
508	7- 7-80	15+90	360D	543.00	8	CL			T	108.7	16.8	3	108.5	17.3	-.5	100.2	
509	7- 7-80	15+60	240U	542.00	8	CL			T	109.5	16.0	3	108.0	17.0	-1.0	101.4	
511	7- 8-80	15+64	25D	544.00	8	CL			T	106.4	16.3	3	106.6	18.3	-2.0	99.8	
512	7- 8-80	15+ 7	25U	543.00	8	CL			T	109.5	15.8	3	109.2	16.7	-.9	100.3	
513	7- 8-80	14+50	100U	544.00	8	CL			T	110.3	16.0	3	109.1	16.5	-.5	101.1	
515	7- 8-80	15+50	50D	543.00	8	CL			T	108.2	16.3	3	108.3	17.3	-1.0	99.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN PLACE DATA: PORTION	IN PLACE DATA: DRY DENS (PCF)	IN PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERT COMP	COMMENTS
516	7- 9-80	15+56	4U	543.00	8	CL			T	108.5	15.6	3	109.5	16.6	-1.0	99.1	
517	7- 9-80	15+35	20D	543.00	8	CL			T	112.4	14.1	3	112.5	15.8	-1.7	99.9	
518	7- 9-80	12+40	350U	544.00	8	CL			T	107.0	16.8	3	108.0	17.4	-.6	99.1	
519	7- 9-80	13+80	175D	544.00	8	CL	29	16	T	112.9	16.0	5	114.1	15.0	1.0	98.3	
519	7- 9-80	13+80	175D	544.00	8	CL	29	16	T	112.9	16.0	3	114.0	15.0	1.0	99.0	
520	7- 9-80	13+63	560D	537.90	8	CL			T	113.5	14.8	3	111.4	15.6	-.8	101.9	
521	7- 9-80	14+20	200U	545.00	8	CL			T	109.5	16.6	3	109.4	17.6	-1.0	100.1	
522	7- 9-80	13+50	180D	540.00	8	CL			T	106.3	18.6	3	109.6	17.5	1.1	97.0	U,NO ACT.,H.C.
523	7-10-80	14+90	115D	544.00	8	CL			T	116.0	15.1	3	111.8	15.4	-.3	103.8	
525	7-10-80	12+ 6	420D	541.00	8	CL			T	111.4	14.4	3	108.5	16.3	-1.9	102.7	
526	7-10-80	13+18	480U	547.00	8	CL			T	113.1	13.8	3	110.2	15.1	-1.3	102.6	
527	7-10-80	13+20	550D	538.00	8	CL			T	111.4	14.5	3	110.8	16.1	1.6	100.5	
528	7-10-80	15+ 0	500D	538.00	8	CL			T	106.8	14.0	3	111.1	15.3	-1.3	96.1	
529	7-11-80	9+40	50D	544.00	8	CL			T	109.0	16.2	3	111.0	16.6	-.4	98.2	
530	7-11-80	9+37	30D	544.00	8	CL	34	21	T	106.4	16.0	3	108.9	16.4	-.4	97.7	
531	7-11-80	10+60	290D	544.00	8	CL			T	112.4	15.7	3	111.9	16.2	-.5	100.4	
532	7-11-80	13+50	85D	544.00	8	CL			T	106.5	15.7	3	111.1	16.8	-1.1	95.9	
533	7-11-80	12+40	520D	540.00	8	CL			T	108.3	14.6	3	108.3	16.6	-2.0	100.0	
534	7-11-80	16+50	500D	540.00	8	CL			T	109.9	15.5	3	111.3	15.7	-.2	98.7	
535	7-11-80	9+80	150D	544.00	8	CL	29	13	T	113.7	11.7	3	115.2	13.7	-2.0	98.7	

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-				CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
535	7-11-80	9+80	150D	544.00	8	CL	29	13	T	113.7	11.7	5	113.3	14.0	-2.3	100.4	
536	7-12-80	11+45	82D	540.00	8	CL			T	109.2	12.2	3	110.6	15.2	-3.0	98.7	U-R,SEE536A
537	7-12-80	10+50	475D	548.00	8	CL			T	116.3	12.3	3	115.5	13.6	-1.3	100.7	
536A	7-14-80	11+45	82D	540.00	8	CL			T	109.0	15.0	3	111.5	16.0	-1.0	97.8	RET.536
538	7-14-80	11+80	175D	540.00	8	CL			T	110.7	15.7	3	110.0	17.0	-1.3	100.6	
539	7-14-80	11+70	80D	544.00	8	CL			T	107.0	15.9	3	109.7	16.8	-.9	97.5	
540	7-14-80	11+50	230D	543.00	8	CL	30	12	T	107.4	17.2	3	111.2	16.6	.6	96.6	
540	7-14-80	11+50	230D	543.00	8	CL	30	12	T	107.4	17.2	5	108.8	17.0	.2	98.7	
541	7-14-80	11+35	390D	545.00	8	CL			T	110.4	12.7	3	110.5	14.4	-1.7	99.9	
543	7-15-80	15+ 0	90U	546.00	8	CL			T	113.6	15.2	3	112.5	15.5	-.3	101.0	
544	7-15-80	15+ 0	80U	546.00	8	CL			T	110.3	15.1	3	111.2	15.5	-.4	99.2	
545	7-16-80	13+75	260U	546.00	8	CL			T	111.2	12.7	3	110.3	15.4	-2.7	100.8	U-R,SEE545A
546	7-16-80	15+40	95U	548.00	8	CL			T	115.4	14.3	3	112.4	15.0	-.7	102.4	
547	7-16-80	14+15	30U	549.00	8	CL			T	108.0	14.4	3	109.7	16.0	-1.6	98.5	
545A	7-17-80	13+75	260U	546.00	8	CL			T	109.4	16.7	3	111.8	16.2	.5	97.9	RET.545
548	7-17-80	15+70	46U	549.00	8	CL			T	112.6	16.1	3	111.4	16.6	-.5	101.1	
549	7-17-80	12+30	550D	541.00	8	CL			T	103.2	11.0	3	109.2	16.2	-5.2	94.5	U-R,SEE549A
550	7-17-80	15+75	530D	538.00	8	CL	35	17	T	106.9	13.2	3	108.8	16.8	-3.6	98.3	U-R,SEE550A
551	7-18-80	15+60	320U	547.00	8	CL			T	106.2	14.5	3	110.6	16.0	-1.5	96.0	
552	7-18-80	12+ 0	325U	547.00	8	CL			T	106.5	9.6	3	110.7	14.2	-4.6	96.2	U-R,SEE552A

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
553	7-19-80	16+60	105U	542.00	8	CL			T	107.5	16.7	3	111.3	16.5	.2	96.6	
554	7-19-80	16+60	151D	541.00	8	CL			T	107.6	16.1	3	112.4	16.5	-.4	95.7	
549A	7-21-80	12+30	550D	541.00	8	CL			T	106.5	15.3	3	108.0	16.6	-1.3	98.6	RET. OF 549
555	7-21-80	16+45	150U	541.00	8	CL			T	110.6	14.9	3	112.2	15.6	-.7	98.6	
556	7-21-80	16+51	25U	542.00	8	CL			T	106.0	14.4	3	112.1	14.9	-.5	94.6	U,NO ACT.,H.C.
557	7-22-80	16+61	192D	542.00	8	CL			T	111.3	14.6	3	111.3	15.5	-.9	100.0	
558	7-22-80	16+80	123U	543.00	8	CL			T	110.9	17.3	3	112.1	16.0	1.3	98.9	
559	7-23-80	16+50	25U	543.00	8	CL			T	100.3	19.3	3	105.1	19.5	-.2	95.4	H.C.
560	7-23-80	16+72	310D	542.00	8	CL	31	13	T	116.0	13.8	3	112.3	15.6	-1.8	103.3	
560	7-23-80	16+72	310D	542.00	8	CL	31	13	T	116.0	13.8	5	111.8	15.7	-1.9	103.8	
561	7-23-80	16+70	210U	547.00	8	CL			T	105.3	17.2	3	104.6	18.2	-1.0	100.7	
550A	7-24-80	15+75	530D	538.00	8	CL			T	106.3	16.7	3	108.3	17.2	-.5	98.2	RET.OF550
562	7-24-80	16+ 8	9D	544.00	8	CL			T	104.6	17.9	3	108.2	17.5	.4	96.7	
563	7-24-80	12+75	525D	542.00	8	CL			T	111.8	15.0	3	110.6	16.5	-1.5	101.1	
564	7-24-80	16+55	45U	546.00	8	CL			T	104.9	19.4	3	104.4	18.9	.5	100.5	
565	7-24-80	16+50	190U	546.00	8	CL			T	104.8	17.9	3	107.3	17.3	.6	97.7	
566	7-25-80	16+45	180U	547.00	8	CL			T	106.4	14.5	3	105.6	16.5	-2.0	100.8	
567	7-25-80	16+50	26U	547.00	8	CL			T	93.6	17.3	3	105.2	18.3	-1.0	89.0	U-R,SEE567A,H.C.
568	7-28-80	17+10	265U	550.00	8	CL			T	109.4	17.6	3	108.0	17.0	.6	101.3	
569	7-28-80	15+80	146U	543.00	8	CL			T	108.9	17.4	3	109.0	17.4	0.0	99.9	

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-				CONTRACTOR-			DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION		
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
570	7-28-80	16+ 5	15D	540.00	8	CL	35	18	T	105.8	17.1	3	109.5	16.2	.9	96.6	
572	7-29-80	16+ 0	220U	549.00	8	CL			T	109.9	17.3	3	110.8	16.3	1.0	99.2	
574	7-29-80	15+85	250U	546.00	8	CL			T	102.8	17.5	3	107.6	18.1	-.6	95.5	
575	7-30-80	16+25	26U	548.00	8	CL			T	111.3	16.4	3	108.0	17.0	-.6	103.1	
RS166	7-31-80	14+ 0	170U	548.00	8	CL	33	16	T	110.3	14.5	3	109.5	15.3	-.8	100.7	R-S
RS166	7-31-80	14+ 0	170U	548.00	8	CL	33	16	T	110.3	14.5	5	109.5	15.9	-1.4	100.7	R-S
576	7-31-80	13+50	25U	547.00	8	CL			T	99.4	14.6	3	107.4	16.4	-1.8	92.6	U-RSEE576A,H.C.
RS167	8- 1-80	14+ 5	40U	548.00	8	CL	33	16	T	111.3	16.7	3	110.9	16.5	.2	100.4	R-S
RS167	8- 1-80	14+ 5	40U	548.00	8	CL	33	16	T	111.3	16.7	5	111.3	16.2	.5	100.0	R-S
567A	8- 1-80	16+50	26U	547.00	8	CL			T	101.3	18.3	3	106.9	17.9	.4	94.8	RE.567,UNA,HC
576A	8- 4-80	13+50	25U	547.00	8	CL			T	107.9	17.9	3	106.0	17.2	.7	101.8	RET.576
577	8- 7-80	14+ 0	505D	540.00	8	CL			T	121.5	12.7	3	112.4	14.8	-2.1	108.1	U,NO ACT.
578	8- 8-80	13+50	180D	547.00	8	CL			T	102.9	12.1	3	110.3	15.2	-3.1	93.3	U-R SEE 578A HC
579	8- 8-80	12+10	20D	549.00	8	CL			T	102.1	15.7	3	106.7	17.2	-1.5	95.7	
580	8- 8-80	10+30	475D	544.00	8	CL			T	110.6	13.6	3	114.7	14.2	-.6	96.4	
580	8- 8-80	10+30	475D	544.00	8	CL			T	110.6	13.6	5	113.3	15.1	-1.5	97.6	
581	8- 8-80	10+31	145D	547.00	8	CL			T	109.9	12.6	3	109.5	16.2	-3.6	100.4	U-R SEE 581A
583	8- 9-80	10+79	329D	546.00	8	CL			T	109.3	17.1	3	110.4	15.6	1.5	99.0	U-R SEE 583A
585	8- 9-80	11+ 5	234D	548.00	8	CL			T	112.4	12.2	3	114.7	14.2	-2.0	98.0	
578A	8-11-80	13+50	180D	547.00	8	CL			T	102.6	17.4	3	110.8	16.4	1.0	92.6	U-R,R.R.,H.C.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
581A	8-11-80	10+31	145D	547.00	8	CL			T	107.0	14.6	3	108.6	16.6	-2.0	98.5	RET. 581
583A	8-11-80	10+79	329D	546.00	8	CL			T	112.5	17.4	3	109.7	16.3	1.1	102.6	U NO ACTION
587	8-11-80	11+35	539D	541.00	8	CL			T	111.2	11.4	3	117.1	13.1	-1.7	95.0	
588	8-11-80	12+75	18D	548.00	8	CL	37	22	T	118.5	14.5	3	111.5	15.8	-1.3	106.3	
588	8-11-80	12+75	18D	548.00	8	CL	37	22	T	118.5	14.5	5	110.5	16.4	-1.9	107.2	
RS-233	8-12-80	16+ 0	550D	540.00	8	CL	30	13	T	111.7	13.3	3	112.0	14.5	-1.2	99.7	R-S
RS-233	8-12-80	16+ 0	550D	540.00	8	CL	30	13	T	111.7	13.3	5	111.7	15.4	-2.1	100.0	R-S
592	8-12-80	11+20	270D	548.00	8	CL			T	112.1	13.0	3	114.6	13.9	-.9	97.8	
593	8-12-80	9+70	170D	547.00	8	CL			T	111.3	13.8	3	110.2	16.3	-2.5	101.0	U-R SEE 593A
593A	8-13-80	9+70	170D	547.00	8	CL			T	106.7	14.0	3	111.8	16.0	-2.0	95.4	RET. 593
594	8-13-80	13+50	180D	549.00	8	CL			T	99.3	18.6	3	106.0	18.0	.6	93.7	U-R SEE 594A WC
595	8-13-80	11+35	175D	548.00	8	CL			T	103.8	16.2	3	106.2	17.8	-1.6	97.7	
597	8-13-80	12+20	75D	548.00	8	CL			T	107.5	19.8	3	107.2	18.1	1.7	100.3	U-R SEE 597A
RS-141	8-14-80	12+72	150U	550.00	8	CL	38	25	T	105.8	16.2	5	111.5	16.6	-.4	94.9	R-S
RS-141	8-14-80	12+72	150U	550.00	8	CL	38	25	T	105.8	16.2	3	110.9	16.0	.2	95.4	R-S
598	8-14-80	10+95	430D	546.00	8	CL			T	105.1	14.1	3	107.3	16.4	-2.3	97.9	U-R SEE 598A
600	8-14-80	12+73	23U	550.00	8	CL			T	118.1	14.1	3	111.4	16.1	-2.0	106.0	
601	8-18-80	11+ 5	545D	548.00	8	CL			T	119.9	12.4	3	115.7	14.4	-2.0	103.6	
603	8-18-80	12+36	358D	549.00	8	CL			T	101.3	13.8	3	104.8	16.6	-2.8	96.7	U-R SEE 603A
RS-114	8-19-80	12+ 0	15U	550.00	8	CL	36	20	T	116.7	14.7	3	111.6	15.8	-1.1	104.6	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
RS-114	8-19-80	12+ 0	15U	550.00	8	CL	36	20	T	116.7	14.7	5	110.8	16.0	-1.3	105.3	R-S
RS-142	8-19-80	12+72	20U	550.00	8	CL	36	19	T	103.6	17.2	5	107.5	16.8	.4	96.4	R-S
RS-142	8-19-80	12+72	20U	550.00	8	CL	36	19	T	103.6	17.2	3	108.8	17.2	0.0	95.2	R-S
RS-143	8-19-80	12+75	80D	550.00	8	CL	38	20	T	107.4	19.3	3	107.2	18.4	.9	100.2	R-S
RS-143	8-19-80	12+75	80D	550.00	8	CL	38	20	T	107.4	19.3	5	105.8	17.7	1.6	101.5	R-S
RS-84	8-19-80	11+ 0	30D	550.00	8	CL	38	21	T	115.7	16.1	3	111.5	16.2	-.1	103.8	R-S
RS-84	8-19-80	11+ 0	30D	550.00	8	CL	38	21	T	115.7	16.1	5	110.3	16.8	-.7	104.9	R-S
594A	8-19-80	13+50	180D	551.00	8	CL			T	106.0	19.2	3	105.0	19.2	0.0	101.0	RET 594 HC
598A	8-19-80	10+95	430D	546.00	8	CL			T	107.4	12.6	3	110.4	13.8	-1.2	97.3	RET 598
603A	8-19-80	12+36	358D	549.00	8	CL			T	102.0	17.8	3	107.8	18.2	-.4	94.6	U REROLLED
604	8-19-80	16+50	25U	552.00	8	CL			T	107.0	18.7	3	106.0	19.0	-.3	100.9	H.C.
597A	8-20-80	12+20	75D	548.00	8	CL			T	103.8	16.7	3	106.0	17.0	-.3	97.9	RET.597
607	8-20-80	13+35	15D	552.00	8	CL			T	106.5	19.2	3	107.6	18.8	.4	99.0	
609	8-20-80	11+32	250D	552.00	8	CL			T	104.9	16.5	3	104.2	18.2	-1.7	100.7	
RS-144	8-22-80	12+72	220D	550.00	8	CL	37	19	T	109.5	17.2	3	108.7	17.3	-.1	100.7	R-S
RS-144	8-22-80	12+72	220D	550.00	8	CL	37	19	T	109.5	17.2	5	106.9	18.1	-.9	102.4	R-S
RS-85	8-22-80	11+ 0	150D	550.00	8	CL	36	19	T	111.0	16.9	5	107.8	17.0	-.1	103.0	R-S
RS-85	8-22-80	11+ 0	150D	550.00	8	CL	36	19	T	111.0	16.9	3	108.6	17.6	-.7	102.2	R-S
614	8-22-80	12+50	129D	553.00	8	CL			T	111.7	15.0	3	110.8	16.2	-1.2	100.8	
618	8-22-80	17+60	144D	550.00	8	CL			T	106.2	18.3	3	107.5	18.7	-.4	98.8	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
620	8-23-80	15+45	280U	550.00	8	CL			T	111.4	15.7	3	110.2	16.7	-1.0	101.1	
621	8-23-80	16+60	59U	552.00	8	CL	36	19	T	100.9	13.9	5	108.9	18.0	-4.1	92.7	U-R,SEE621A
621	8-23-80	16+60	59U	552.00	8	CL	36	19	T	100.9	13.9	3	108.0	17.1	-3.2	93.4	U-R,SE 621A
552A	8-25-80	12+ 0	325U	547.00	8	CL			T	113.9	13.6	3	112.3	14.4	-.8	101.4	RET OF 552
621A	8-25-80	16+60	59U	550.00	8	CL			T	111.3	15.2	3	111.0	15.8	-.6	100.3	RET OF 621
624	8-25-80	13+85	532D	550.00	8	CL			T	104.9	15.8	3	104.7	18.4	-2.6	100.2	U-R,SE 624A
626	8-25-80	17+20	242D	550.00	8	CL			T	110.9	16.9	3	110.2	16.5	.4	100.6	
627	8-25-80	13+50	235D	551.00	8	CL			T	109.9	16.0	3	108.3	17.1	-1.1	101.5	
628	8-25-80	13+95	60U	552.00	8	CL			T	108.8	12.9	3	110.0	14.9	-2.0	98.9	
629	8-25-80	16+95	85U	552.00	8	CL	29	11	T	112.0	16.3	3	111.7	16.1	.2	100.3	
629	8-25-80	16+95	85U	552.00	8	CL	29	11	T	112.0	16.3	5	111.2	16.2	.1	100.6	
630	8-25-80	15+50	250U	551.00	8	CL			T	110.3	18.0	3	110.4	17.5	.5	99.9	
624A	8-26-80	13+85	532D	550.00	8	CL			T	111.3	16.1	3	107.1	17.1	-1.0	103.9	RET.624
631	8-26-80	11+30	300D	553.00	8	CL			T	108.9	15.1	3	107.0	16.9	-1.8	101.8	
632	8-26-80	12+75	140U	555.00	8	CL			T	110.3	17.1	3	107.0	17.9	-.8	103.1	H.C.
633	8-26-80	16+50	380U	550.00	8	CL			T	107.4	19.1	3	110.8	16.9	2.2	96.9	U-R,SEE633A
635	8-27-80	12+75	227D	553.00	8	CL			T	104.2	18.2	3	106.4	17.8	.4	97.9	H.C.
636	8-27-80	9+76	92D	554.00	8	CL			T	109.9	16.3	3	107.1	17.9	-1.6	102.6	
637	8-27-80	12+80	180U	554.00	8	CL			T	113.4	16.0	3	109.7	16.7	-.7	103.4	
638	8-27-80	16+30	120U	551.00	8	CL			T	112.1	15.3	3	112.9	15.6	-.3	99.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
639	8-27-80	11+45	593D	549.00	8	CL			T	115.0	16.4	3	109.0	17.3	-.9	105.5	
642	8-27-80	11+ 0	20U	551.00	8	CL			T	112.3	15.7	3	112.0	16.0	-.3	100.3	H.C.
643	8-27-80	12+15	330U	552.00	8	CL			T	117.8	12.1	3	113.2	14.2	-2.1	104.1	U,NOACT.
644	8-27-80	15+95	55U	553.00	8	CL			T	112.3	13.3	3	115.2	14.2	-.9	97.5	
645	8-27-80	12+75	120U	553.00	8	CL			T	114.5	14.4	3	114.8	14.4	0.0	99.7	
646	8-27-80	14+85	240U	553.00	8	CL			T	107.9	13.4	3	113.6	14.7	-1.3	95.0	
RS111	8-28-80	12+ 0	470U	550.00	8	CL	34	18	T	111.8	14.9	3	112.3	15.2	-.3	99.6	R-S
RS111	8-28-80	12+ 0	470U	550.00	8	CL	34	18	T	111.8	14.9	5	111.0	15.8	-.9	100.7	R-S
RS169	8-28-80	14+ 0	320U	550.00	8	CL	37	20	T	115.3	16.6	3	110.2	16.7	-.1	104.6	R-S
RS169	8-28-80	14+ 0	320U	550.00	8	CL	37	20	T	115.3	16.6	5	109.3	16.9	-.3	105.5	R-S
RS235	8-28-80	16+ 0	200U	550.00	8	CL	28	12	T	121.6	14.2	3	116.5	14.3	-.1	104.4	R-S
RS235	8-28-80	16+ 0	200U	550.00	8	CL	28	12	T	121.6	14.2	5	115.5	13.6	.6	105.3	R-S
633A	8-28-80	16+50	380U	550.00	8	CL			T	106.9	17.5	3	109.8	17.4	.1	97.4	RET.633
648	8-28-80	11+57	22D	552.00	8	CL			T	118.4	14.2	3	110.0	15.3	-1.1	107.6	
649	8-28-80	12+36	352D	552.00	8	CL			T	110.4	15.0	3	107.8	17.4	-2.4	102.4	U,REW.&RER.
650	8-28-80	14+40	90U	554.00	8	CL	31	16	T	112.7	15.3	3	114.9	14.8	.5	98.1	
651	8-28-80	17+20	220U	553.00	8	CL			T	111.5	15.4	3	113.6	15.4	0.0	98.2	
652	8-28-80	12+ 0	35U	553.00	8	CL			T	115.5	13.4	3	114.4	15.0	-1.6	101.0	
RS236	8-29-80	16+ 0	50U	550.00	8	CL	32	15	T	113.3	16.5	3	113.0	15.7	.8	100.3	R-S
RS236	8-29-80	16+ 0	50U	550.00	8	CL	32	15	T	113.3	16.5	5	111.3	15.9	.6	101.8	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS86	8-29-80	11+ 0	300D	550.00	8	CL	39	21	T	108.3	18.5	3	106.7	18.7	-.2	101.5	R-S
RS86	8-29-80	11+ 0	300D	550.00	8	CL	39	21	T	108.3	18.5	5	105.7	18.9	-.4	102.5	R-S
RS87	8-29-80	11+ 0	450D	550.00	8	CL	39	21	T	108.3	15.6	3	106.8	18.0	-2.4	101.4	R-S,NO ACT.
RS87	8-29-80	11+ 0	450D	550.00	8	CL	39	21	T	108.3	15.6	5	105.8	18.2	-2.6	102.4	R-S
653	8-29-80	10+87	525D	550.00	8	CL			T	114.3	14.4	3	113.5	15.1	-.7	100.7	
654	8-29-80	9+85	163D	554.00	8	CL			T	114.2	16.5	3	111.7	16.2	.3	102.2	
655	8-29-80	14+70	150U	553.00	8	CL			T	115.3	13.4	3	115.8	14.4	-1.0	99.6	
656	8-29-80	11+30	105U	553.00	8	CL			T	116.9	12.9	3	115.8	14.4	-1.5	100.9	
657	8-29-80	12+85	290U	553.00	8	CL			T	114.2	14.8	3	114.9	15.0	-.2	99.4	
658	8-29-80	11+75	28U	554.00	8	CL			T	111.3	15.8	3	112.0	16.4	-.6	99.4	
659	8-29-80	15+80	27U	554.00	8	CL			T	114.4	15.4	3	113.8	15.6	-.2	100.5	
660	8-29-80	14+75	240U	554.00	8	CL	34	17	T	113.8	14.6	5	112.3	15.4	-.8	101.3	
660	8-29-80	14+75	240U	554.00	8	CL	34	17	T	113.8	14.6	3	114.0	15.2	-.6	99.8	
661	8-30-80	11+60	440D	552.00	8	CL			T	113.2	17.0	3	109.2	18.0	-1.0	103.7	
664	8-30-80	14+91	27U	554.00	8	CL			T	112.9	16.0	3	111.2	16.1	-.1	101.5	
665	9- 3-80	9+42	392D	551.00	8	CL			T	115.8	15.1	3	114.2	15.2	-.1	101.4	H.C.
667	9- 8-80	13+35	95D	554.00	8	CL			T	113.7	14.3	3	116.7	13.8	.5	97.4	
670	9-10-80	11+76	150D	555.00	8	CL	30	11	T	111.4	16.0	3	111.3	16.2	-.2	100.1	
671	9-10-80	13+50	80D	556.00	8	CL			T	115.2	14.4	3	111.9	15.1	-.7	102.9	H.C.
673	9-10-80	17+25	60U	552.00	8	CL	32	15	T	103.7	16.9	3	108.8	17.4	-.5	95.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
676	9-11-80	14+20	20U	553.00	8	CL			T	108.3	14.9	3	110.8	16.4	-1.5	97.7	
677	9-11-80	11+80	180U	553.00	8	CL			T	118.3	15.0	3	117.2	14.2	.8	100.9	
678	9-11-80	16+60	250U	553.00	8	CL			T	115.7	15.5	3	116.7	14.3	1.2	99.1	U,NO ACT.
679	9-11-80	14+30	290U	553.00	8	CL			T	118.5	13.8	3	116.0	13.8	0.0	102.2	
680	9-11-80	11+30	90D	556.00	8	CL	35	19	T	109.5	18.4	3	110.6	17.0	1.4	99.0	U-R,SEE680A
680	9-11-80	11+30	90D	556.00	8	CL	35	19	T	109.5	18.4	5	109.7	16.9	1.5	99.8	U-R,SEE680A
682	9-12-80	14+90	135U	554.00	8	CL			T	113.3	15.6	3	111.4	16.2	-.6	101.7	
683	9-12-80	10+50	290U	554.00	8	CL			T	118.6	11.0	3	114.9	13.9	-2.9	103.2	U-R,SEE683A
685	9-12-80	17+65	50U	555.00	8	CL			T	111.1	16.2	3	112.1	15.0	1.2	99.1	U,NO ACT.
687	9-12-80	13+47	95D	556.00	8	CL			T	111.8	15.9	3	112.5	16.4	-.5	99.4	
688	9-12-80	14+38	47U	556.00	8	CL			T	115.9	14.3	3	114.2	15.4	-1.1	101.5	
680A	9-15-80	11+30	90D	556.00	8	CL			T	110.8	15.4	3	112.5	15.5	-.1	98.5	RET. OF 680
683A	9-15-80	10+50	290U	554.00	8	CL			T	115.8	13.2	3	115.4	13.9	-.7	100.3	RET. OF 683
689	9-15-80	13+82	60D	557.00	8	CL			T	109.8	17.0	3	111.5	16.3	.7	98.5	
690	9-15-80	11+ 0	20U	557.00	8	CL	25	11	T	117.5	12.7	3	116.9	13.0	-.3	100.5	H.C.
691	9-15-80	11+65	30U	557.00	8	CL			T	110.7	15.4	3	112.5	15.5	-.1	98.4	
RS-168	9-16-80	14+ 0	470U	550.00	8	CL	34	16	T	117.0	15.7	5	110.4	16.5	-.8	106.0	R-S
RS-168	9-16-80	14+ 0	470U	550.00	8	CL	34	16	T	117.0	15.7	3	111.5	16.7	-1.0	104.9	R-S
RS-200	9-16-80	15+ 0	430U	550.00	8	CL	34	18	T	116.1	15.8	5	110.3	16.4	-.6	105.3	R-S
RS-200	9-16-80	15+ 0	430U	550.00	8	CL	34	18	T	116.1	15.8	3	111.8	16.4	-.6	103.8	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-259	9-17-80	16+65	25U	555.00	8	CL	33	17	T	108.4	14.6	3	111.4	15.5	-.9	97.3	R-S
RS-259	9-17-80	16+65	25U	555.00	8	CL	33	17	T	108.4	14.6	5	110.8	15.4	-.8	97.8	R-S
692	9-17-80	16+54	80U	555.00	8	CL			T	111.1	18.4	3	110.0	17.0	1.4	101.0	U,NO ACT.
693	9-18-80	16+50	25U	558.00	8	CL			T	111.3	14.6	3	113.1	14.8	-.2	98.4	H.C.
694	9-18-80	7+76	205D	552.00	8	CL			T	113.7	14.9	3	113.2	15.2	-.3	100.4	
697	9-19-80	10+60	140D	557.09	8	CL			T	109.0	16.7	3	109.6	17.8	-1.1	99.5	
698	9-20-80	16+74	105U	556.00	8	CL			T	112.5	12.8	3	113.7	14.5	-1.7	98.9	
699	9-20-80	9+75	505D	551.00	8	CL	26	8	T	106.7	14.4	5	110.5	15.4	-1.0	96.6	
699	9-20-80	9+75	505D	551.00	8	CL	26	8	T	106.7	14.4	3	110.7	15.7	-1.3	96.4	
700	9-20-80	7+74	207D	553.00	8	CL			T	111.5	16.2	3	112.0	16.0	.2	99.6	H.C.
701	9-20-80	11+54	280D	557.00	8	CL			T	119.0	12.2	3	117.0	13.8	-1.6	101.7	
703	9-22-80	12+40	135U	559.00	8	CL			T	113.8	12.7	3	114.5	14.4	-1.7	99.4	
704	9-22-80	16+ 2	85U	557.00	8	CL			T	113.1	14.9	3	114.0	15.0	-.1	99.2	
705	9-22-80	17+30	424D	551.00	8	CL			T	112.0	15.5	3	113.8	15.2	.3	98.4	H.C.
706	9-22-80	14+40	250U	555.00	8	CL			T	110.2	17.3	3	108.6	17.2	.1	101.5	
RS-258	9-23-80	16+57	150U	555.00	8	CL	35	17	T	112.7	15.2	3	108.0	17.0	-1.8	104.4	R-S
RS-258	9-23-80	16+57	150U	555.00	8	CL	35	17	T	112.7	15.2	5	107.4	17.3	-2.1	104.9	R-S
707	9-23-80	10+90	330U	558.00	8	CL			T	108.3	20.5	3	104.4	20.5	0.0	103.7	
708	9-23-80	9+20	460D	552.00	8	CL			T	109.5	11.4	3	110.0	15.3	-3.9	99.5	U-R,SEE708A
710	9-23-80	16+75	32U	557.00	8	CL			T	116.9	15.7	3	114.2	15.1	.6	102.4	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
711	9-23-80	17+70	355U	554.00	8	CL			T	122.2	12.3	3	113.4	14.9	-2.6	107.8	U-R,MAT. REM.
713	9-23-80	12+35	285D	554.00	8	CL			T	114.0	13.7	3	115.7	14.1	-1.1	98.5	
715	9-23-80	17+45	300D	553.00	8	CL			T	114.1	14.9	3	113.3	15.0	-.1	100.7	
717	9-24-80	17+27	11D	557.00	8	CL			T	116.5	14.0	3	112.2	15.6	-1.6	103.8	
718	9-24-80	17+61	400U	551.00	8	CL			T	117.8	14.0	3	117.8	13.8	.2	100.0	
719	9-24-80	16+ 5	78U	557.00	8	CL			T	116.2	15.7	3	112.2	16.4	-.7	103.6	
708A	9-25-80	9+20	460D	552.00	8	CL			T	116.2	13.7	3	117.4	13.6	.1	99.0	RET.708
721	9-25-80	15+65	240U	557.00	8	CL			T	102.7	17.3	3	105.3	19.3	-2.0	97.5	
722	9-25-80	12+90	247U	556.00	8	CL			T	111.5	14.8	3	114.9	14.9	-.1	97.0	
723	9-25-80	16+60	40U	558.00	8	CL			T	107.0	16.8	3	111.5	16.6	.2	96.0	
724	9-25-80	10+95	18U	561.00	8	CL			T	105.3	16.4	3	103.0	18.4	-2.0	102.2	
RS-234	9-26-80	16+ 0	350U	550.00	8	CL	31	14	T	116.4	14.5	5	113.6	15.0	-.5	102.6	R-S
RS-234	9-26-80	16+ 0	350U	550.00	8	CL	31	14	T	116.4	14.5	3	115.0	15.0	-.5	101.2	R-S
725	9-26-80	13+50	26U	561.00	8	CL			T	113.6	14.8	3	113.2	15.6	-.8	100.4	H.C.
726	9-26-80	16+35	410U	554.00	8	CL			T	113.9	14.8	3	111.0	15.8	-1.0	102.6	
727	9-26-80	11+24	92D	559.00	8	CL			T	117.5	12.6	3	115.4	13.6	-1.0	101.8	
729	9-26-80	17+45	192U	557.00	8	CL			T	111.0	16.8	3	113.2	15.4	1.4	98.1	U-R,SEE729A
730	9-26-80	13+80	200U	559.00	8	CL	26	12	T	115.3	11.7	3	115.6	13.0	-1.3	99.7	
729A	9-27-80	17+45	192U	557.00	8	CL			T	116.1	13.5	3	116.6	14.0	-.5	99.6	RET.729
732	9-27-80	11+ 0	26U	560.00	8	CL			T	113.2	15.1	3	111.0	15.8	-.7	102.0	H.C.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	PI	IN-PLACE DATA PORTION	DRY DENS (PCF)	WC	LAB TEST DATA METHOD	MAX DRY DENS (PCF)	OPT WC	CORRELATION DIFF FRM OPT	PERC COMP	COMMENTS
733	9-27-80	12+55	60D	559.00	8	CL			T	110.6	18.3	3	106.9	17.8	.5	103.5	
734	9-27-80	17+88	32D	559.00	8	CL			T	112.6	16.9	3	110.2	17.4	-.5	102.2	
735	9-27-80	9+83	143D	559.00	8	CL			T	116.9	11.7	3	116.6	13.9	-2.2	100.3	U,NO ACT.
738	9-29-80	16+ 2	85U	559.00	8	CL			T	113.3	13.9	3	114.4	15.0	-1.1	99.0	
739	9-29-80	11+36	275U	559.00	8	CL			T	117.2	14.1	3	115.4	15.4	-1.3	101.6	
741	9-29-80	13+83	234D	558.00	8	CL			T	115.7	14.3	3	114.4	14.8	-.5	101.1	
744	9-30-80	12+25	345U	560.00	8	CL			T	115.7	14.8	3	114.1	14.7	.1	101.4	
745	9-30-80	15+10	488U	557.00	8	CL	24	11	T	118.5	11.5	3	120.0	12.4	-.9	98.7	
748	9-30-80	10+37	306U	560.00	8	CL			T	111.7	16.4	3	111.3	16.9	-.5	100.4	
749	9-30-80	12+30	109D	562.00	8	CL			T	114.3	10.6	3	118.2	12.6	-2.0	96.7	
750	10- 1-80	13+22	23U	563.00	8	CL	34	19	T	114.2	14.3	3	113.4	15.0	-.7	100.7	
754	10- 1-80	15+61	263U	559.00	8	CL			T	104.3	17.5	3	107.2	18.2	-.7	97.3	
756	10- 1-80	11+40	115U	562.00	8	CL			T	110.1	15.7	3	112.0	15.6	.1	98.3	
757	10- 2-80	13+86	335U	561.00	8	CL			T	112.3	16.9	3	111.4	16.8	.1	100.8	
763	10- 3-80	17+67	185U	560.00	8	CL			T	109.9	14.2	3	112.1	15.5	-1.3	98.0	
766	10- 4-80	10+28	219D	559.00	8	CL			T	117.0	14.5	3	115.4	14.5	0.0	101.4	
767	10- 4-80	17+73	87U	563.00	8	CL			T	114.6	15.1	3	116.2	13.8	1.3	98.6	U-R,SEE767A
768	10- 4-80	18+10	15U	564.00	8	CL			T	104.9	19.5	3	102.8	20.8	-1.3	102.0	
769	10- 4-80	10+95	264U	561.00	8	CL			T	112.1	15.9	3	109.2	17.7	-1.8	102.7	
770	10- 4-80	15+10	450U	556.00	8	CL	33	15	T	109.9	16.7	3	108.9	17.7	-1.0	100.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-117	10- 6-80	12+ 0	100U	560.00	8	CL	39	24	T	111.0	15.5	3	109.8	17.0	-1.5	101.1	R-S
RS-117	10- 6-80	12+ 0	100U	560.00	8	CL	39	24	T	111.0	15.5	5	109.1	17.5	-2.0	101.7	R-S
RS-90	10- 6-80	11+ 0	70U	560.00	8	CL	40	22	T	113.7	15.8	5	110.0	16.8	-1.0	103.4	R-S
RS-90	10- 6-80	11+ 0	70U	560.00	8	CL	40	22	T	113.7	15.8	3	109.4	17.2	-1.4	103.9	R-S
767A	10- 6-80	17+73	87U	563.00	8	CL			T	114.0	15.2	3	114.5	14.8	.4	99.6	RET.767
RS-118	10- 7-80	12+ 0	80D	560.00	8	CL	27	11	T	122.2	12.6	5	114.4	13.8	-1.2	106.8	R-S
RS-118	10- 7-80	12+ 0	80D	560.00	8	CL	27	11	T	122.2	12.6	3	117.0	14.0	-1.4	104.4	R-S
776	10- 8-80	11+20	56U	563.00	8	CL			T	111.1	15.1	3	113.9	15.3	-.2	97.5	
777	10- 8-80	15+99	106U	559.00	8	CL			T	117.0	14.1	3	113.8	15.3	-1.2	102.8	
778	10- 8-80	14+16	205U	559.00	8	CL			T	108.5	14.1	3	109.6	16.4	-2.3	99.0	U,NO ACT.
779	10- 9-80	17+50	18U	559.00	8	CL			T	110.2	17.1	3	112.9	15.8	1.3	97.6	U-R,R.R.
780	10- 9-80	12+85	410U	560.00	8	CL	40	23	T	106.8	14.6	3	109.5	16.8	-2.2	97.5	U,NO ACT.
780	10- 9-80	12+85	410U	560.00	8	CL	40	23	T	106.8	14.6	5	106.9	17.7	-3.1	99.9	U,NO ACT.
781	10- 9-80	10+15	327U	561.00	8	CL			T	114.3	13.6	3	109.4	16.3	-2.7	104.5	U-R,SEE781A
783	10- 9-80	11+72	131D	561.00	8	CL			T	109.0	17.3	3	108.7	17.2	.1	100.3	
787	10-10-80	11+84	53D	565.00	8	CL			T	109.8	17.7	3	110.2	17.0	.7	99.6	
781A	10-11-80	10+15	327U	561.00	8	CL			T	113.0	14.3	3	114.0	14.8	-.5	99.1	RET.781
790	10-13-80	13+30	205U	561.00	8	CL	42	24	T	108.3	15.7	3	107.6	17.2	-1.5	100.7	
791	10-13-80	10+25	175U	561.00	8	CL			T	115.1	14.7	3	109.2	16.6	-1.9	105.4	
799	10-21-80	11+10	110U	564.00	8	CL			T	117.4	13.7	3	117.0	14.2	-.5	100.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
800	10-21-80	13+95	70U	564.00	8	CL	30	14	T	112.0	14.0	3	115.5	14.6	-.6	97.0	
800	10-21-80	13+95	70U	564.00	8	CL	30	14	T	112.0	14.0	5	113.3	14.3	-.3	98.9	
801	10-21-80	16+30	40U	564.00	8	CL			T	108.9	18.2	3	109.4	18.0	.2	99.5	
803	10-22-80	10+75	365U	558.00	8	CL			T	110.8	17.1	3	113.8	15.8	1.3	97.4	U-R,SEE803A
804	10-22-80	15+75	450U	557.00	8	CL			T	109.9	16.0	3	110.0	16.8	-.8	99.9	
803A	10-23-80	10+75	365U	558.00	8	CL			T	110.6	14.7	3	113.8	14.6	.1	97.2	RET.803
808	10-23-80	10+36	90U	565.00	8	CL			T	117.7	15.0	3	112.8	15.2	-.2	104.3	
809	10-23-80	12+33	136U	564.00	8	CL			T	111.6	15.9	3	113.8	15.8	.1	98.1	
810	10-23-80	17+65	201D	562.00	8	CL			T	107.4	14.4	3	111.6	15.8	-1.4	96.2	
811	10-23-80	13+93	13D	565.00	8	CL	38	19	T	111.7	16.9	3	110.6	17.0	-.1	101.0	
RS-203	10-29-80	15+ 0	130U	560.00	8	CL	30	13	T	116.8	15.7	3	114.0	15.2	.5	102.5	R-S
RS-203	10-29-80	15+ 0	130U	560.00	8	CL	30	13	T	116.8	15.7	5	112.0	15.6	.1	104.3	R-S
RS-116	10-31-80	12+ 0	250U	560.00	8	CL	41	25	T	110.3	15.8	5	107.8	17.6	-1.8	102.3	R-S
RS-116	10-31-80	12+ 0	250U	560.00	8	CL	41	25	T	110.3	15.8	3	107.5	15.2	.6	102.6	R-S
RS-202	10-31-80	15+ 0	260U	560.00	8	CL	28	11	T	115.0	15.9	3	114.4	15.0	.9	100.5	R-S
RS-202	10-31-80	15+ 0	260U	560.00	8	CL	28	11	T	115.0	15.9	5	112.0	15.4	.5	102.7	R-S
RS-89	10-31-80	11+ 0	250U	560.00	8	CL	37	22	T	114.4	16.4	5	109.4	17.6	-1.2	104.6	R-S
RS-89	10-31-80	11+ 0	250U	560.00	8	CL	37	22	T	114.4	16.4	3	111.4	17.3	-.9	102.7	R-S
RS-115	11- 1-80	12+ 0	400U	560.00	8	CL	35	20	T	111.2	17.4	3	111.0	16.0	1.4	100.2	R-S,U,NO ACT.
RS-115	11- 1-80	12+ 0	400U	560.00	8	CL	35	20	T	111.2	17.4	5	110.2	16.2	1.2	100.9	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-88	11- 1-80	11+ 0	450U	560.00	8	CL	35	19	T	116.8	13.5	3	112.2	15.4	-1.9	104.1	R-S
RS-88	11- 1-80	11+ 0	450U	560.00	8	CL	35	19	T	116.8	13.5	5	111.9	15.6	-2.1	104.4	R-S
812	11- 5-80	9+20	315D	550.00	8	CL			T	108.0	15.6	3	112.9	15.0	.6	95.7	H.C.
815	11- 7-80	10+30	230U	563.00	8	CL			T	116.4	13.1	3	119.8	12.9	.2	97.2	
816	11- 8-80	17+60	10U	566.00	8	CL			T	110.6	15.5	3	113.2	14.4	1.1	97.7	U,NO ACT.
819	11-10-80	10+44	118U	567.00	8	CL			T	110.0	15.9	3	113.6	15.0	.9	96.8	
822	11-20-80	9+90	135D	568.00	8	CL			T	108.9	14.2	3	109.4	15.0	-.8	99.5	
823	11-21-80	17+ 5	305D	569.00	8	CL			T	110.2	13.6	3	112.0	15.0	-1.4	98.4	
824	4- 7-81	15+ 0	530D	548.00	8	CL			T	113.8	15.6	3	112.4	15.5	.1	101.2	
825	4- 7-81	11+33	595D	549.00	8	CL			T	113.2	15.0	3	114.9	14.6	.4	98.5	
826	4- 7-81	12+77	582D	547.00	8	CL			T	116.6	13.0	3	115.4	13.8	-.8	101.0	
827	4- 8-81	15+81	612D	548.00	8	CL			T	114.9	13.9	3	113.8	14.8	-.9	101.0	
828	4-17-81	11+70	52D	565.00	8	CL			T	111.1	17.0	3	113.1	15.7	1.3	98.2	U-R,SEE 828A
828A	4-27-81	11+70	52D	565.00	8	CL			T	118.4	13.4	3	113.6	14.5	-1.1	104.2	RET.828
RS-298	4-29-81	12+75	100U	564.00	8	CL	29	11	T	115.7	15.6	5	113.8	14.6	1.0	101.7	R-S,AFR
RS-298	4-29-81	12+75	100U	564.00	8	CL	29	11	T	115.7	15.6	3	114.6	15.0	.6	101.0	R-S,AFR
RS-300	5- 1-81	15+ 0	100U	561.80	8	CL	32	18	T	112.4	12.9	5	113.6	15.5	-2.6	98.9	R-S,AFR
RS-300	5- 1-81	15+ 0	100U	561.80	8	CL	32	18	T	112.4	12.9	3	111.4	14.8	-1.9	100.9	R-S,AFR
832	5- 2-81	15+10	100U	582.00	8	CL			T	114.0	15.7	3	114.9	14.8	.9	99.2	
836	5- 8-81	16+20	255U	583.00	8	CL			T	113.4	13.7	3	113.5	14.3	-.6	99.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
837	5- 8-81	11+93	283U	562.00	8	CL			T	113.5	13.4	3	113.1	14.6	-1.2	100.4	
838	5- 9-81	16+14	456U	557.00	8	CL			T	118.4	13.2	3	114.3	14.3	-1.1	103.6	
840	6- 2-81	16+25	25U	562.00	8	CL	34	23	T	118.8	14.4	3	112.6	15.7	-1.3	105.5	
840	6- 2-81	16+25	25U	562.00	8	CL	34	23	T	118.8	14.4	5	112.2	15.2	-.8	105.9	
846	6-17-81	16+11	147U	563.00	8	CL			T	114.2	16.9	3	112.1	15.9	1.0	101.9	
848	6-17-81	14+ 3	251U	562.00	8	CL			T	118.3	12.9	3	113.4	14.4	-1.5	104.3	
849	6-17-81	11+74	331U	563.00	8	CL			T	117.6	14.6	3	113.2	15.4	-.8	103.9	
850	6-17-81	15+ 8	460U	560.00	8	CL	34	20	T	117.7	14.9	3	114.8	14.9	0.0	102.5	
856	6-18-81	13+48	128U	566.00	8	CL			T	119.4	13.3	3	113.8	14.6	-1.3	104.9	
857	6-18-81	10+74	49U	567.00	8	CL			T	120.9	14.7	3	112.6	15.5	-.8	107.4	
858	6-18-81	16+59	274U	566.00	8	CL			T	113.0	17.1	3	113.0	15.6	1.5	100.0	U-R,SEE 858A
859	6-18-81	16+50	25U	562.00	8	CL			T	112.8	12.3	3	114.2	14.6	-2.3	98.8	U-NO ACT. HC
860	6-19-81	16+50	26U	565.00	8	CL			T	113.8	13.3	3	114.4	14.0	-.7	99.5	H.C.
863	6-20-81	10+51	70D	566.00	8	CL	35	24	T	119.8	13.9	5	113.6	14.6	-.7	105.5	
863	6-20-81	10+51	70D	566.00	8	CL	35	24	T	119.8	13.9	3	113.8	14.4	-.5	105.3	
858A	6-27-81	16+59	274U	566.00	8	CL			T	115.2	15.5	3	112.0	16.0	-.5	102.9	RET. 858
875	7- 2-81	18+ 2	149U	571.00	8	CL	29	16	T	116.9	14.5	5	114.6	14.0	.5	102.0	
875	7- 2-81	18+ 2	149U	571.00	8	CL	29	16	T	116.9	14.5	3	116.1	13.9	.6	100.7	
876	7- 2-81	11+10	160U	563.00	8	CL			T	116.8	15.3	3	116.6	14.1	1.2	100.2	U,NO ACT.
877	7- 2-81	13+11	264U	563.00	8	CL			T	115.8	14.3	3	114.8	14.9	-.6	100.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
882	7- 8-81	16+35	395W	565.00	8	CL			T	118.4	15.0	3	113.6	14.9	.1	104.2	
885	7- 9-81	14+25	140W	567.00	8	CL			T	122.8	13.1	3	118.4	13.5	-.4	103.7	
887	7- 9-81	11+37	394W	563.00	8	CL			T	117.8	12.1	3	116.2	13.9	-1.8	101.4	
890	7-10-81	12+40	58W	568.00	8	CL	27	14	T	116.8	14.1	3	117.5	13.7	.4	99.4	
891	7-11-81	10+66	385W	565.00	8	CL			T	117.1	13.4	3	118.9	13.2	.2	98.5	
892	7-11-81	15+64	152W	566.00	8	CL			T	118.9	13.0	3	118.0	13.2	-.2	100.8	
896	7-13-81	17+23	138W	567.00	8	CL			T	117.3	11.1	3	118.1	12.6	-1.5	99.3	
897	7-13-81	13+27	161W	567.00	8	CL			T	118.6	13.2	3	119.6	12.5	.7	99.2	
898	7-14-81	11+78	372W	564.00	8	CL			T	114.1	14.1	3	116.4	14.1	0.0	98.0	
899	7-14-81	13+26	69W	568.00	8	CL			T	114.6	15.1	3	116.0	13.9	1.2	98.8	U,REW.
900	7-14-81	16+20	172W	567.00	8	CL			T	114.2	15.4	3	116.1	14.5	.9	98.4	
906	7-16-81	13+37	331W	567.00	8	CL			T	120.6	13.8	3	117.7	13.9	-.1	102.5	
907	7-17-81	11+48	230W	568.00	8	CL			T	116.5	14.3	3	116.1	14.2	.1	100.3	
910	8-12-81	7+73	195D	545.00	8	CL			T	117.5	13.4	3	116.1	12.7	.7	101.2	T R AREA AFT FLD
911	8-18-81	17+ 1	165W	566.00	8	CL			T	113.9	11.9	3	119.4	12.6	-.7	95.4	E.P.
912	8-18-81	15+51	225W	566.00	8	CL			T	122.5	13.3	3	118.5	13.3	0.0	103.4	E.P.
913	8-18-81	10+51	160W	568.00	8	CL			T	119.2	12.2	3	119.2	12.7	-.5	100.0	E.P.
914	8-18-81	13+58	251W	565.00	8	CL	28	14	T	118.0	13.9	3	118.1	13.0	.9	99.9	E.P.
915	8-18-81	11+18	168W	569.00	8	CL			T	115.0	14.3	3	118.3	13.0	1.3	97.2	U,NO ACT E.P.
916	8-18-81	17+50	240W	569.00	8	CL			T	111.9	12.3	3	119.6	12.7	-.4	93.6	U,REW E.P.

PROJECT-			RIVER-		STATE-		TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA		CORRELATION	
							ATTERBERG LIMITS								
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
RS-147	8-19-81	12+75	200U	570.00	8	CL	25	11	T	126.0	11.6	5	118.7	12.5	-.9	106.1	R-S,E.P.
RS-147	8-19-81	12+75	200U	570.00	8	CL	25	11	T	126.0	11.6	3	119.7	12.8	-1.2	105.3	R-S,E.P.
917	8-19-81	12+ 8	251U	570.00	8	CL			T	115.9	15.2	3	114.8	14.7	.5	101.0	E.P.
919	8-19-81	16+92	161U	569.00	8	CL			T	115.7	14.7	3	116.0	13.4	1.3	99.7	U,NO ACT.,EP
920	8-19-81	10+82	326U	568.00	8	CL	27	13	T	117.3	13.5	5	116.8	12.7	.8	100.4	
920	8-19-81	10+82	326U	568.00	8	CL	27	13	T	117.3	13.5	3	117.0	13.1	.4	100.3	
921	8-19-81	15+61	400U	563.00	8	CL			T	112.3	15.0	3	114.5	14.4	.6	98.1	
922	8-20-81	12+75	328U	567.00	8	CL			T	123.3	13.1	3	119.8	13.0	.1	102.9	
923	8-20-81	11+53	168U	571.00	8	CL			T	114.7	14.1	3	112.1	16.2	-2.1	102.3	U,NO ACT,E.P.
924	8-20-81	15+42	254U	569.00	8	CL			T	118.2	14.6	3	113.2	15.0	-.4	104.4	E.P.
925	8-20-81	16+14	335U	565.00	8	CL			T	117.7	13.3	3	118.0	14.0	-.7	99.7	
926	8-21-81	13+41	219U	571.00	8	CL			T	117.3	15.3	3	113.2	14.9	.4	103.6	E.P.
927	8-21-81	12+68	376U	576.00	8	CL			T	116.3	14.1	3	114.4	14.0	.1	101.7	
928	8-21-81	14+52	177U	570.00	8	CL			T	115.3	13.8	3	111.9	15.1	-1.3	103.0	E.P.
929	8-21-81	17+16	117U	567.00	8	CL			T	113.5	13.6	3	115.5	12.5	1.1	98.3	U,NO ACT
RS-242	8-22-81	16+ 0	200U	570.00	8	CL	31	18	T	115.4	15.5	5	112.9	14.4	1.1	102.2	R-S,E.P.
RS-242	8-22-81	16+ 0	200U	570.00	8	CL	31	18	T	115.4	15.5	3	113.9	14.6	.9	101.3	R-S,E.P.
930	8-22-81	10+90	204U	571.00	8	CL	31	17	T	113.8	15.6	3	112.4	15.6	0.0	101.2	E.P.
931	8-22-81	16+ 4	121U	567.00	8	CL			T	116.5	14.1	3	116.9	14.3	-.2	99.7	
933	8-24-81	15+36	210U	570.00	8	CL			T	116.3	14.4	3	111.3	15.4	-1.0	104.5	E.P.

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
934	8-24-81	11+61	212U	572.00	8	CL			T	114.5	15.4	3	112.2	15.6	-.2	102.0	E.P.
935	8-24-81	10+64	343U	568.00	8	CL			T	115.9	15.1	3	116.0	14.3	.8	99.9	
936	8-28-81	12+ 4	128U	566.00	8	CL			T	115.7	13.6	3	113.6	14.7	-1.1	101.8	
937	9- 3-81	15+87	185U	573.00	9	CL			T	118.5	14.3	3	115.2	14.3	0.0	102.9	E.P.
938	9- 3-81	12+63	209U	573.00	8	CL			T	119.4	14.0	3	114.0	14.9	-.9	104.7	E.P.
940	9- 4-81	11+ 5	163U	573.00	8	CL	36	21	T	114.2	13.8	3	112.5	15.1	-1.3	101.5	E.P.
940	9- 4-81	11+ 5	163U	573.00	8	CL	36	21	T	114.2	13.8	5	114.5	15.3	-1.5	99.7	E.P.
941	9- 5-81	11+71	280U	573.00	8	CL			T	113.1	15.6	3	110.3	16.3	-.7	102.5	E.P.
942	9- 5-81	16+12	340U	566.00	8	CL			T	117.3	12.6	3	115.4	14.5	-1.9	101.6	
943	9- 9-81	12+99	155U	573.00	8	CL			T	113.7	14.7	3	114.5	14.7	0.0	99.3	
944	9- 9-81	10+49	24D	556.00	8	CL			T	114.0	13.2	3	116.5	14.0	-.8	97.9	E.C.
945	9-10-81	15+66	201U	575.00	8	CL			T	115.8	13.5	3	114.6	14.0	-.5	101.0	E.P.
946	9-10-81	11+21	385U	569.00	8	CL			T	116.4	14.9	3	112.9	16.1	-1.2	103.1	
947	9-10-81	16+89	420U	563.00	8	CL			T	116.1	15.1	3	113.5	15.5	-.4	102.3	
949	9-10-81	16+53	267U	577.00	8	CL			T	115.5	14.6	3	111.9	15.5	-.9	103.2	E.P.
950	9-11-81	15+71	195U	577.00	8	CL	32	18	T	111.9	14.6	3	114.6	15.0	-.4	97.6	E.P.
951	9-11-81	11+20	310U	570.00	8	CL			T	118.4	14.1	3	112.6	15.4	-1.3	105.2	
952	9-12-81	14+47	410U	565.00	8	CL			T	116.1	14.3	3	113.4	14.7	-.4	102.4	
964	9-12-81	9+62	45D	557.00	8	CL			T	115.3	15.1	3	112.4	15.2	-.1	102.6	E.C.
955	9-12-81	11+20	195U	579.00	8	CL			T	118.3	13.7	3	114.1	14.3	-.6	103.7	E.P.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
956	9-12-81	10+74	320U	575.00	8	CL			T	117.7	14.4	3	112.8	14.5	-.1	104.3	
957	9-12-81	10+21	6D	562.00	8	CL			T	115.9	14.9	3	109.2	16.6	-1.7	106.1	E.C.
958	9-14-81	16+59	173U	579.00	8	CL			T	114.5	17.2	3	110.7	16.3	.9	103.4	E.P.
960	9-14-81	13+38	225U	580.00	8	CL	36	21	T	114.2	14.2	3	114.1	14.6	-.4	100.1	E.P.
960	9-14-81	13+38	225U	580.00	8	CL	36	21	T	114.2	14.2	5	113.8	14.7	-.5	100.4	E.P.
961	9-15-81	9+62	54D	560.00	8	CL			T	118.0	14.1	3	114.2	14.5	-.4	103.3	E.C.
RS-92	9-16-81	11+ 0	375U	570.00	8	CL	33	19	T	114.8	15.0	3	114.6	14.7	.3	100.2	R-S
RS-92	9-16-81	11+ 0	375U	570.00	8	CL	33	19	T	114.8	15.0	5	113.8	14.5	.5	100.9	R-S
962	9-16-81	11+30	257U	580.00	8	CL			T	112.6	13.9	3	112.2	15.0	-1.1	100.4	E.P.
964	9-16-81	17+23	315U	572.00	8	CL			T	113.8	14.3	3	111.8	15.1	-.8	101.8	
965	9-16-81	10+85	15U	567.00	8	CL			T	115.1	14.0	3	113.4	14.9	-.9	101.5	E.C.
966	9-16-81	10+ 0	412U	575.00	8	CL			T	110.4	16.8	3	110.5	16.7	.1	99.9	
967	9-17-81	15+82	293U	573.00	8	CL			T	115.5	14.5	3	111.6	16.1	-1.6	103.5	
968	9-17-81	12+72	191U	580.00	8	CL			T	112.2	15.4	3	112.8	14.6	.8	99.5	E.P.
969	9-17-81	12+36	437U	570.00	8	CL			T	114.6	16.4	3	110.0	16.6	-.2	104.2	
970	9-18-81	16+54	320U	572.00	8	CL	34	20	T	115.8	15.4	3	113.2	15.2	.2	102.3	
972	9-18-81	10+79	42D	566.00	8	CL			T	117.2	14.5	3	112.5	15.1	-.6	104.2	E.C.
973	9-18-81	13+41	165U	585.00	8	CL			T	114.5	15.5	3	111.8	15.1	.4	102.4	E.P.
974	9-18-81	14+ 4	338U	572.00	8	CL			T	114.7	16.0	3	112.8	15.9	.1	101.7	
976	9-19-81	9+82	66D	567.00	8	CL			T	116.7	13.6	3	111.8	15.2	-1.6	104.4	E.C.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
978	9-19-81	10+45	191U	580.00	8	CL			T	117.5	14.9	3	113.6	14.9	0.0	103.4	E.P.
979	9-19-81	11+ 0	26U	569.00	8	CL			T	115.1	14.4	3	112.8	14.4	0.0	102.0	E.C.,H.C.
980	9-19-81	10+67	12U	569.00	8	CL	34	20	T	113.1	14.5	5	112.2	15.3	-.8	100.8	E.C.
980	9-19-81	10+67	12U	569.00	8	CL	34	20	T	113.1	14.5	3	111.9	15.1	-.6	101.1	E.C.
981	9-19-81	17+88	175U	581.00	8	CL			T	116.2	13.9	3	112.5	15.4	-1.5	103.3	E.P.
982	9-21-81	11+42	238U	582.00	8	CL			T	112.7	16.1	3	111.7	15.9	.2	100.9	E.P.
983	9-21-81	15+67	330U	572.00	8	CL			T	113.9	14.1	3	111.7	15.0	-.9	102.0	
984	9-21-81	14+ 3	240U	582.00	8	CL			T	114.1	16.0	3	111.7	14.9	1.1	102.1	U,NO ACT.,EP
985	9-21-81	11+20	200U	580.00	8	CL			T	110.3	14.7	3	112.6	15.8	-1.1	98.0	E.P.
986	9-21-81	11+35	300U	572.00	8	CL			T	113.4	14.7	3	112.7	14.7	0.0	100.6	
987	9-22-81	13+12	280U	574.00	8	CL			T	114.4	13.6	3	111.8	15.0	-1.4	102.3	
988	9-22-81	10+50	110U	570.00	8	CL			T	110.4	16.1	3	112.5	16.1	0.0	98.1	
989	9-22-81	13+75	200U	585.00	8	CL			T	117.5	14.7	3	113.0	14.6	.1	104.0	E.P.
RS-69	9-23-81	10+ 0	100U	570.00	8	CL	36	20	T	114.2	16.8	5	109.9	16.2	.6	103.9	R-S
RS-69	9-23-81	10+ 0	100U	570.00	8	CL	36	20	T	114.2	16.8	3	112.2	15.5	1.3	101.8	R-S,U,NO ACT
990	9-23-81	13+48	425U	571.00	8	CL	45	29	T	110.4	14.9	3	106.5	17.9	-3.0	103.7	U-R,SEE990A
991	9-23-81	9+87	167U	574.00	8	CL			T	112.5	16.8	3	112.6	15.5	1.3	99.9	U,NO ACT. EP
990A	9-24-81	13+48	425U	571.00	8	CL			T	110.5	16.3	3	108.4	17.0	-.7	101.9	RET. 990
992	9-24-81	11+91	310U	573.00	8	CL			T	114.6	15.7	3	111.9	15.9	-.2	102.4	
993	9-24-81	11+ 0	235U	582.00	8	CL			T	118.2	14.6	3	113.0	15.1	-.5	104.6	E.P.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
994	9-24-81	15+ 0	350U	572.00	8	CL			T	115.0	15.7	3	113.0	15.4	.3	101.8	
1001	9-25-81	10+24	51D	570.00	8	CL			T	118.4	11.9	3	111.0	14.8	-2.9	106.7	U-R,REW.LAT.,EP
1002	9-25-81	9+85	60U	576.00	8	CL			T	108.2	16.9	3	113.3	14.5	2.4	95.5	U-R,SEE1002A,EP
996	9-25-81	10+12	1U	573.00	8	CL			T	111.4	14.2	3	111.4	15 3	-1.1	100.0	E.P.
998	9-25-81	9+85	218U	577.00	8	CL			T	109.9	15.9	3	111.7	14.4	1.5	98.4	U-R,SEE998A,EP
999	9-25-81	14+72	209U	584.00	8	CL			T	116.1	16.3	3	112.1	15.8	.5	103.6	E.P.
1003	9-26-81	11+ 9	493D	545.00	8	CL			T	114.0	15.1	3	113.4	15.0	.1	100.5	
1002A	9-28-81	9+85	60U	576.00	8	CL			T	116.7	13.6	3	112.7	14.9	-1.3	103.5	RET. 1002
1004	9-28-81	10+44	479D	551.00	8	CL			T	118.8	13.6	3	112.3	14.4	-.8	105.8	
1005	9-28-81	12+90	200U	584.00	8	CL			T	112.9	14.3	3	111.8	15.4	-1.1	101.0	E.P.
998A	9-28-81	9+85	218U	577.00	8	CL			T	110.5	13.0	3	112.1	15.1	-2.1	98.6	U,NOACT,RET998
RS-146	9-29-81	12+75	400U	570.00	8	CL	46	31	T	113.1	17.9	5	107.2	17.1	.8	105.5	R-S
RS-146	9-29-81	12+75	400U	570.00	8	CL	46	31	T	113.1	17.9	3	108.9	16.7	1.2	103.9	R-S
1006	9-29-81	13+60	220U	585.00	8	CL			T	116.5	14.2	3	112.2	15.7	-1.5	103.8	E.P.
1007	9-29-81	10+82	153U	576.00	8	CL			T	117.9	13.8	3	113.2	14.2	-.4	104.2	E.P.
1008	9-29-81	9+44	376U	578.00	8	CL			T	115.0	15.0	3	111.9	15.7	-.7	102.8	
1009	9-29-81	17+ 0	331U	575.00	8	CL			T	111.1	16.2	3	108.0	16.9	-.7	102.9	
1011	9-29-81	17+ 7	205U	584.00	8	CL			T	115.7	15.4	3	113.0	15.6	-.2	102.4	E.P.
1012	9-30-81	15+ 0	275U	576.00	8	CL			T	105.1	13.2	3	110.2	15.7	-2.5	95.4	U-R,MAT. REM.
1013	9-30-81	14+80	200U	588.00	8	CL			T	117.3	13.7	3	109.2	14.8	-1.1	107.4	E.P.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
1014	9-30-81	16+ 2	350U	573.00	8	CL			T	114.0	16.4	3	109.4	16.6	-.2	104.2	
1015	9-30-81	13+50	422U	572.00	8	CL			T	113.9	15.6	3	110.8	16.1	-.5	102.8	
1016	9-30-81	16+35	360U	573.00	8	CL			T	112.7	16.9	3	112.8	15.9	1.0	99.9	
RS-208	10- 1-81	15+ 0	380U	570.00	8	CL	37	22	T	114.8	15.4	5	110.9	16.1	-.7	103.5	R-S
RS-208	10- 1-81	15+ 0	380U	570.00	8	CL	37	22	T	114.8	15.4	3	110.4	15.5	-.1	104.0	R-S
1017	10- 1-81	12+65	281U	577.00	8	CL			T	111.2	15.7	3	112.0	15.2	.5	99.3	
1019	10- 1-81	15+50	270U	579.00	8	CL			T	117.0	15.5	3	110.6	17.0	-1.5	105.8	
RS-95	10- 2-81	11+ 0	300U	580.00	8	CL	38	21	T	114.1	16.1	5	109.0	17.2	-1.1	104.7	R-S
RS-95	10- 2-81	11+ 0	300U	580.00	8	CL	38	21	T	114.1	16.1	3	109.6	17.2	-1.1	104.1	R-S
1020	10- 2-81	9+85	100U	577.00	8	CL	29	13	T	115.6	11.8	3	113.8	14.4	-2.6	101.6	U-R,MAT. REM.
1020	10- 2-81	9+85	100U	577.00	8	CL	29	13	T	115.6	11.8	5	112.9	14.5	-2.7	102.4	U-R,MAT. REM.
1022	10- 2-81	10+ 5	380U	577.00	8	CL			T	114.7	16.2	3	112.2	15.6	.6	102.2	
RS-152	10- 3-81	12+75	260U	580.00	8	CL	34	19	T	113.6	15.8	5	111.0	16.0	-.2	102.3	R-S
RS-152	10- 3-81	12+75	260U	580.00	8	CL	34	19	T	113.6	15.8	3	111.8	16.2	-.4	101.6	R-S
1023	10- 3-81	11+42	226U	589.00	8	CL			T	114.1	15.9	3	114.0	15.4	.5	100.1	E.P.
1024	10- 3-81	17+70	355U	575.00	8	CL			T	117.2	13.7	3	115.0	14.7	-1.0	101.9	
1025	10- 3-81	13+85	504D	542.00	8	CL			T	110.9	17.2	3	109.6	16.6	.6	101.2	
1027	10- 4-81	10+21	36U	575.00	8	CL			T	115.3	15.0	3	113.0	15.5	-.5	102.0	E.P.
1028	10- 4-81	17+28	212U	587.00	8	CL			T	114.1	13.8	3	115.6	13.7	.1	98.7	E.P.
1029	10- 4-81	10+65	181U	582.00	8	CL			T	114.2	16.0	3	113.0	16.1	-.1	101.1	E.P.

PROJECT-		RIVER-		STATE-		TOWN-			CONTRACT NO.-			CONTRACTOR-			DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1030	10- 4-81	18+35	126U	575.00	8	CL	37	19	T	113.8	15.4	3	109.8	15.8	-.4	103.6	E.P.
1031	10- 6-81	12+30	300U	575.00	8	CL			T	114.5	15.9	3	112.2	16.1	-.2	102.0	
1032	10- 6-81	17+ 4	425U	572.00	8	CL			T	114.0	16.8	3	112.3	16.0	.8	101.5	
RS-241	10- 7-81	16+ 0	410U	570.00	8	CL	34	18	T	113.4	16.0	5	110.0	16.3	-.3	103.1	R-S
RS-241	10- 7-81	16+ 0	410U	570.00	8	CL	34	18	T	113.4	16.0	3	112.3	15.9	.1	101.0	R-S
1033	10- 7-81	10+75	375U	572.60	8	CL			T	115.1	15.6	3	113.5	15.7	-.1	101.4	
RS-121	10- 8-81	12+ 0	340U	580.00	8	CL	35	19	T	117.2	15.1	3	111.8	15.3	-.2	104.8	R-S
RS-121	10- 8-81	12+ 0	340U	580.00	8	CL	35	19	T	117.2	15.1	5	111.5	15.6	-.5	105.1	R-S
RS-151	10- 8-81	12+75	320U	580.00	8	CL	34	18	T	116.5	14.9	5	112.3	15.8	-.9	103.7	R-S
RS-151	10- 8-81	12+75	320U	580.00	8	CL	34	18	T	116.5	14.9	3	113.0	15.3	-.4	103.1	R-S
1034	10- 8-81	14+24	300U	575.00	8	CL			T	106.1	17.2	3	105.9	17.9	-.7	100.2	
1035	10- 8-81	13+20	400U	575.00	8	CL			T	114.7	17.1	3	108.9	17.7	-.6	105.3	
1036	10- 9-81	11+ 0	180U	581.00	8	CL			T	98.1	24.2	3	95.5	25.5	-1.3	102.7	E.P.
1037	10- 9-81	12+12	291U	584.00	8	CL	49	32	T	105.7	17.8	5	103.4	19.4	-1.6	102.2	
1037	10- 9-81	12+12	291U	584.00	8	CL	49	32	T	105.7	17.8	3	103.9	19.1	-1.3	101.7	
1039	10- 9-81	14+81	379U	575.00	8	CL			T	96.3	25.5	3	94.3	26.2	-.7	102.1	
RS-179	10-10-81	14+ 0	380U	575.00	8	CH	77	51	T	93.6	30.0	5	93.0	27.0	3.0	100.6	R-S
1040	10-19-81	9+58	111U	581.00	8	CL			T	98.3	21.4	3	98.3	21.9	-.5	100.0	E.P.
1042	10-20-81	10+78	125U	580.00	8	CL			T	117.7	13.2	3	113.6	14.9	-1.7	103.6	E.P.
1043	10-20-81	17+25	62D	550.00	8	CL			T	110.8	14.2	3	110.1	15.9	-1.7	100.6	F.L.R.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1044	10-20-81	14+51	230D	548.00	8	CL			T	113.7	13.9	3	112.6	15.0	-1.1	101.0	F.L.R.
1045	10-20-81	10+61	73U	582.00	8	CL			T	112.6	13.9	3	112.5	15.0	-1.1	100.1	E.P.
1046	10-21-81	16+25	422D	546.00	8	CL			T	117.3	14.0	3	113.3	15.0	-1.0	103.5	F.L.R
1047	10-21-81	17+12	161D	549.00	8	CL			T	111.1	14.3	3	111.2	16.2	-1.9	99.9	F.L.R.
1049	10-21-81	10+27	192U	588.00	8	CL			T	118.8	13.9	3	114.3	14.7	-.8	103.9	E.P.
1051	10-21-81	12+36	490D	546.00	8	CL			T	93.8	14.0	3	114.1	15.0	-1.0	82.2	U-R,MAT REM FLR
1052	10-21-81	10+80	170U	588.00	8	CL			T	117.9	13.8	3	114.6	14.3	-.5	102.9	E.P.
1053	10-21-81	14+30	75D	549.00	8	CL			T	114.4	14.9	3	114.4	14.5	.4	100.0	F.L.R.
1054	10-21-81	13+11	507D	544.00	8	CL			T	115.4	14.2	3	114.0	14.7	-.5	101.2	F.L.R.
1056	10-22-81	12+36	492D	545.00	8	CL			T	115.8	15.0	3	113.1	15.4	-.4	102.4	F.L.R.,H.C.
1057	10-22-81	9+82	46U	588.00	8	CL			T	112.8	15.5	3	112.8	15.6	-.1	100.0	E.P.
1059	10-22-81	17+28	490D	545.00	8	CL			T	111.0	14.6	3	112.0	16.3	-1.7	99.1	F.L.R.,H.C.
1060	10-22-81	11+39	218U	589.00	8	CL			T	115.5	14.9	3	113.2	15.7	-.8	102.0	E.P.
1061	10-23-81	15+54	300D	548.00	8	CL			T	118.8	13.8	3	112.6	15.5	-1.7	105.5	FLR
1062	10-23-81	10+24	275U	583.00	8	CH	56	38	T	107.3	18.4	3	103.0	20.5	-2.1	104.2	U,NO ACT
1062	10-23-81	10+24	275U	583.00	8	CH	56	38	T	107.3	18.4	5	102.4	20.6	-2.2	104.8	
1063	10-24-81	16+ 5	382U	578.00	8	CL			T	110.9	17.9	3	105.8	18.6	-.7	104.8	
1064	10-24-81	14+46	14U	551.00	8	CL			T	115.1	16.3	3	111.2	16.6	-.3	103.5	FLR
1065	10-24-81	12+69	358D	547.00	8	CL			T	115.7	14.8	3	113.8	15.1	-.3	101.7	FLR
RS210	10-26-81	15+ 0	300U	580.00	8	CH	55	36	T	99.9	20.5	3	103.0	20.7	-.2	97.0	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
RS210	10-26-81	15+ 0	300U	580.00	8	CH	55	36	T	99.9	20.5	5	101.7	19.8	.7	98.2	
1066	10-26-81	9+80	190U	583.00	8	CL			T	109.6	19.0	3	110.5	16.9	2.1	99.2	U-R,MAT. REM.
1067	10-28-81	15+86	290U	581.00	8	CL			T	100.2	25.1	3	96.3	24.1	1.0	104.0	
1068	10-26-81	16+75	362D	547.00	8	CL			T	111.2	18.1	3	106.6	19.3	-1.2	104.3	FLR
1069	10-27-81	11+60	410U	581.00	8	CL			T	114.2	15.4	3	109.5	17.4	-2.0	104.3	
1070	10-27-81	17+ 0	225U	582.00	8	CH	66	48	T	103.2	21.6	3	98.6	23.1	-1.5	104.7	
1071	10-27-81	13+71	359D	548.00	8	CL			T	117.0	15.5	3	111.6	16.2	-.7	104.8	FLR
1072	10-27-81	16+59	188D	549.00	8	CL			T	112.3	16.4	3	111.5	16.2	.2	100.7	FLR
1073	10-28-81	16+66	423D	547.00	8	CL			T	115.0	14.3	3	112.1	15.6	-1.3	102.6	FLR,H.C.
1074	10-28-81	15+94	330U	583.00	8	CL			T	106.0	20.8	3	104.3	20.5	.3	101.6	
1075	10-28-81	15+10	97D	551.00	8	CL			T	112.4	16.1	3	112.6	15.5	.6	99.8	FLR
1076	10-29-81	16+ 8	420D	546.00	8	CL			T	112.3	17.5	3	110.2	17.0	.5	101.9	FLR
1077	10-29-81	14+73	324U	584.00	8	CL			T	104.5	20.0	3	100.9	22.2	-2.2	103.6	U,NO ACT.
1078	10-30-81	16+17	401D	547.00	8	CL			T	113.3	16.7	3	112.9	15.6	1.1	100.4	FLR,U,NO ACT
1079	10-30-81	13+28	173D	549.00	8	CL			T	115.4	14.3	3	114.9	14.5	-.2	100.4	FLR
1080	10-30-81	10+73	308U	585.00	8	CL			T	105.0	19.0	3	101.6	20.9	-1.9	103.3	
1082	10-30-81	14+91	370U	583.00	8	CL			T	104.7	20.4	3	101.9	19.6	.8	102.7	
RS-303	4-20-82	12+75	100D	560.90	8	CL	33	17	T	108.9	15.8	3	112.6	15.5	.3	96.7	R-S,A.F.R.
RS-303	4-20-82	12+75	100D	560.90	8	CL	33	17	T	108.9	15.8	5	111.5	15.7	.1	97.7	R-S,A.F.R.
RS-305	4-20-82	15+ 0	100D	549.10	8	CL	36	21	T	116.3	15.6	3	113.5	15.0	.6	102.5	R-S, A.F.R.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-305	4-20-82	15+ 0	100D	549.10	8	CL	36	21	T	116.3	15.6	5	111.9	16.0	-.4	103.9	R-S,A.F.R.
1083	4-22-82	14+35	15U	552.00	8	CL			T	118.4	14.1	3	114.4	14.6	-.5	103.5	FLR
1084	4-23-82	15+60	390D	547.00	8	CL			T	123.3	14.5	3	113.0	15.3	-.8	109.1	FLR
1085	4-23-82	16+ 5	112D	550.00	8	CL			T	115.2	14.7	3	113.3	15.1	-.4	101.7	FLR
1086	4-23-82	14+94	271D	549.00	8	CL			T	118.1	14.5	3	114.6	14.5	0.0	103.1	FLR
1087	4-24-82	16+89	160D	551.00	8	CL			T	115.0	15.9	3	114.1	14.9	1.0	100.8	FLR
1088	4-24-82	14+47	498D	547.00	8	CL			T	114.6	14.6	3	114.2	14.9	-.3	100.4	FLR,HC
1089	4-24-82	12+41	475D	548.00	8	CL			T	113.9	14.5	3	114.4	14.7	-.2	99.6	FLR
RS170A	4-26-82	14+ 0	300D	550.00	8	CL	32	18	T	117.9	14.6	3	115.2	14.1	.5	102.3	R-S, FLR
RS170A	4-26-82	14+ 0	300D	550.00	8	CL	32	18	T	117.9	14.6	5	112.8	14.8	-.2	104.5	R-S, FLR
RS201A	4-26-82	15+ 0	300D	549.50	8	CL	32	16	T	115.9	14.1	5	113.4	14.4	-.3	102.2	R-S, FLR
RS201A	4-26-82	15+ 0	300D	549.50	8	CL	32	16	T	115.9	14.1	3	114.6	14.6	-.5	101.1	R-S, FLR
RS171A	4-27-82	14+ 0	170D	551.00	8	CL	33	19	T	115.0	15.0	3	114.7	14.4	.6	100.3	R-S, FLR
RS171A	4-27-82	14+ 0	170D	551.00	8	CL	33	19	T	115.0	15.0	5	113.6	14.6	.4	101.2	R-S, FLR
1090	4-27-82	14+65	203D	552.00	8	CL	31	17	T	113.5	12.9	3	115.3	14.0	-1.1	98.4	FLR
1091	4-28-82	13+95	134D	554.00	8	CL			T	119.0	13.7	3	111.9	15.4	-1.7	106.3	FLR
1092	4-28-82	16+32	412D	553.00	8	CL			T	116.0	15.4	3	113.6	15.0	.4	102.1	FLR
RS260A	4-29-82	16+57	80D	555.00	8	CL	32	18	T	114.8	14.5	5	114.0	14.4	.1	100.7	R-S, FLR
RS260A	4-29-82	16+57	80D	555.00	8	CL	32	18	T	114.8	14.5	3	114.6	14.2	.3	100.2	R-S, FLR
RS-246	4-29-82	16+ 0	320U	580.00	8	CH	57	36	T	101.9	23.8	3	101.6	21.4	2.4	100.3	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-246	4-29-82	16+ 0	320U	580.00	8	CH	57	36	T	101.3	23.8	5	101.8	21.2	2.6	100.1	R-S
1094	4-29-82	13+10	40D	557.00	8	CL			T	114.9	13.8	3	115.4	14.1	-.3	99.6	FLR
1095	4-29-82	15+50	25U	558.00	8	CL			T	117.3	14.5	3	113.3	15.0	-.5	103.5	FLR
RS145A	4-30-82	12+75	360D	550.00	8	CL	32	16	T	114.8	16.0	3	114.7	14.7	1.3	100.1	R-S, FLR
RS145A	4-30-82	12+75	360D	550.00	8	CL	32	16	T	114.8	16.0	5	113.5	14.8	1.2	101.1	R-S, FLR
RS237A	4-30-82	16+ 0	50D	555.00	8	CL	33	19	T	115.2	14.8	3	114.9	14.4	.4	100.3	R-S, FLR
RS237A	4-30-82	16+ 0	50D	555.00	8	CL	33	19	T	115.2	14.8	5	113.0	14.7	.1	101.9	R-S, FLR
1096	4-30-82	13+75	180D	555.00	8	CL			T	117.5	13.4	3	115.0	14.0	-.6	102.2	FLR
1097	5- 1-82	10+20	300D	550.00	8	CL			T	115.2	14.9	3	112.8	15.4	-.5	102.1	FLR
1098	5- 1-82	12+81	429D	551.00	8	CL			T	116.7	13.8	3	114.6	14.7	-.9	101.8	FLR, H.C.
1100	5- 1-82	14+23	434D	552.00	8	CL	34	20	T	115.5	13.6	5	111.6	15.8	-2.2	103.5	FLR
1100	5- 1-82	14+23	434D	552.00	8	CL	34	20	T	115.5	13.6	3	113.2	15.2	-1.6	102.0	FLR
1101	5- 1-82	9+89	236D	553.00	8	CL			T	113.1	15.2	3	112.0	15.4	-.[illegible]	101.0	FLR
1102	5- 3-82	16+20	114D	555.00	8	CL			T	118.8	14.2	3	113.6	14.7	-.5	104.6	FLR
1103	5- 4-82	16+53	370D	553.00	8	CL			T	114.7	15.2	3	114.7	15.0	.2	100.0	FLR
1104	5- 4-82	14+ 0	552D	550.00	8	CL			T	114.4	14.5	3	113.7	14.7	-.2	100.6	FLR
1105	5- 4-82	16+23	120D	557.00	8	CL			T	111.9	13.0	3	112.6	14.7	-1.7	99.4	FLR
RS238A	5- 5-82	16+ 0	150D	555.00	8	CL	34	20	T	112.2	13.7	3	113.9	14.5	-.8	98.5	R-S, FLR
RS238A	5- 5-82	16+ 0	150D	555.00	8	CL	34	20	T	112.2	13.7	5	113.2	15.4	-1.7	99.1	R-S, FLR
1106	5- 5-82	11+27	440D	553.00	8	CL			T	113.6	14.5	3	114.2	14.6	-.1	99.5	FLR

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1107	5- 5-82	16+ 0	455D	551.00	8	CL			T	115.8	15.8	3	112.6	15.3	.5	102.8	FLR
1108	5-11-82	13+60	40U	561.00	8	CL			T	106.3	15.1	3	112.1	15.7	-.6	94.8	U,NO ACT,FLR
1109	5-11-82	12+82	330D	553.00	8	CL			T	111.7	15.5	3	112.0	15.0	.5	99.7	FLR,H.C.
1110	5-11-82	14+50	340D	553.00	8	CL	34	20	T	106.0	15.9	3	110.9	16.2	-.3	95.6	FLR
1111	5-12-82	17+14	200D	556.00	8	CL			T	115.2	15.4	3	115.3	14.6	.8	99.9	FLR
1112	5-12-82	13+90	140D	558.00	8	CL			T	112.0	14.6	3	112.0	15.3	-.7	100.0	FLR
1113	5-18-82	9+98	234D	562.00	8	CL			T	118.6	12.9	3	117.0	13.1	-.2	101.4	FLR
1114	5-19-82	9+43	73D	563.00	8	CL			T	113.9	15.8	3	114.4	15.2	.6	99.6	FLR
1115	5-20-82	16+50	288U	582.00	8	CL			T	102.4	16.5	3	101.8	20.7	-4.2	100.6	U-R,SEE1115A
1116	5-20-82	10+58	372U	585.00	8	CL			T	107.0	20.8	3	101.9	21.0	-.2	105.0	
1117	5-20-82	13+52	20D	562.00	8	CL			T	108.5	15.3	3	112.7	15.6	-.3	96.3	FLR
RS204A	5-24-82	15+ 0	10U	560.00	8	CL	36	20	T	116.0	15.4	5	111.7	15.8	-.4	103.8	R-S,FLR
RS204A	5-24-82	15+ 0	10U	560.00	8	CL	36	20	T	116.0	15.4	3	113.3	15.0	.4	102.4	R-S,FLR
1115A	5-24-82	16+50	288U	582.00	8	CL			T	106.5	19.6	3	107.0	18.2	1.4	99.5	RET. 1115
1118	5-24-82	12+86	330D	555.00	8	CL			T	116.2	14.6	3	117.2	13.9	.7	99.1	FLR
RS66A	5-27-82	10+ 0	60D	563.00	8	CL	33	19	T	115.2	13.5	3	113.4	14.8	-1.3	101.6	R-S,FLR
RS66A	5-27-82	10+ 0	60D	563.00	8	CL	33	19	T	115.2	13.5	5	112.8	15.2	-1.7	102.1	R-S,FLR
RS-304	6-14-82	15+ 0	210U	588.80	8	CL	34	18	T	119.1	15.7	5	112.2	15.3	.4	106.1	R-S,AFR
RS-304	6-14-82	15+ 0	210U	588.80	8	CL	34	18	T	119.1	15.7	3	113.2	15.5	.2	105.2	R-S,AFR
1119	6-14-82	12+57	250U	584.00	8	CL			T	106.2	20.1	3	110.0	17.3	2.8	96.5	U-R,SEE1119A

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						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
RS-302	6-15-82	12+75	210U	589.50	8	CL	32	16	T	120.7	13.6	3	114.0	15.2	-1.6	105.9	R-S,AFR
RS-302	6-15-82	12+75	210U	589.50	8	CL	32	16	T	120.7	13.6	5	114.3	14.1	-.5	105.6	R-S,AFR
RS172A	6-22-82	14+ 0	40D	560.00	8	CL	37	23	T	111.7	18.0	3	111.8	16.7	1.3	99.9	R-S,U,NOACT,FLR
RS172A	6-22-82	14+ 0	40D	560.00	8	CL	37	23	T	111.7	18.0	5	110.0	16.3	1.7	101.5	R-S,U,NO ACT,FLR
1119A	6-22-82	12+57	250U	584.00	8	CL			T	106.4	15.4	3	112.2	16.3	-.9	94.8	U,NO ACT,RET1119
1120	6-22-82	11+95	140U	570.00	8	CL	29	12	T	119.5	13.8	3	115.1	14.5	-.7	103.8	F.L.R.
1120	6-22-82	11+95	140U	570.00	8	CL	29	12	T	119.5	13.8	5	115.0	14.3	-.5	103.9	F.L.R.
1121	6-22-82	16+ 2	61U	569.00	8	CL			T	114.3	9.9	3	117.1	13.0	-3.1	97.6	U-R,SEE1121A,FLR
1122	6-22-82	11+84	12D	567.00	8	CL			T	112.0	16.8	3	113.8	15.4	1.4	98.4	U-R,SEE1122A,FLR
1121A	6-23-82	16+ 2	61U	569.00	8	CL			T	117.8	14.1	3	116.2	14.4	-.3	101.4	RET.1121,FLR
1122A	6-23-82	11+84	12D	567.00	8	CL			T	117.0	13.7	3	114.8	14.6	-.9	101.9	RET.1122,FLR
1123	6-23-82	15+80	225D	561.00	8	CL			T	108.6	18.1	3	111.4	16.6	1.5	97.5	U-R,SEE1123A,FLR
RS205A	6-24-82	15+ 0	50D	560.00	8	CL	34	18	T	113.8	17.0	3	112.3	16.0	1.0	101.3	R-S,FLR
RS205A	6-24-82	15+ 0	50D	560.00	8	CL	34	18	T	113.8	17.0	5	109.6	16.1	.9	103.8	R-S,FLR
1123A	6-24-82	15+80	225D	561.00	8	CL			T	114.5	13.6	3	112.9	15.0	-1.4	101.4	RET.1123,FLR
1124	6-25-82	12+74	49U	565.00	8	CL			T	120.1	14.7	3	114.2	15.0	-.3	105.2	F.L.R.
1126	6-25-82	14+ 2	81D	562.00	8	CL			T	111.7	18.3	3	109.8	17.2	1.1	101.7	U,NO ACT,FLR
1129	6-26-82	10+56	44D	565.00	8	CL			T	113.9	14.8	3	115.8	14.4	.4	98.4	F.L.R.
1130	6-26-82	15+ 4	54U	566.00	8	CL	37	22	T	115.6	15.1	3	112.4	15.7	-.6	102.8	F.L.R.
1131	6-26-82	13+49	80D	560.00	8	CL			T	114.0	16.0	3	111.1	15.7	.3	102.6	H.C.,FLR

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
1132	6-26-82	16+12	179D	562.00	8	CL			T	117.4	12.1	3	119.5	12.2	-.1	98.2	F.L.R.
RS206A	--30-82	15+ 0	130D	560.00	8	CL	31	16	T	118.4	14.9	3	115.2	14.6	.3	102.8	R-S,FLR
RS206A	--30-82	15+ 0	130D	560.00	8	CL	31	16	T	118.4	14.9	5	113.5	14.8	.1	104.3	R-S,FLR
1133	6-30-82	15+90	325D	558.00	8	CL	24	11	T	117.1	13.1	3	121.4	12.0	1.1	96.5	U,NO ACT,FLR
1135	7- 6-82	12+94	258U	586.00	8	CL			T	111.3	14.8	3	111.4	15.8	-1.0	99.9	
1136	7- 6-82	16+49	25U	564.00	8	CL			T	111.2	16.4	3	113.7	15.0	1.4	97.8	U,NO ACT,HC,FLR
1137	7- 6-82	15+87	394U	579.00	8	CL			T	108.5	18.9	3	105.8	19.0	-.1	102.6	
1138	7- 6-82	11+45	97U	570.00	8	CL			T	109.0	16.2	3	111.5	16.0	.2	97.8	
1139	7- 7-82	14+45	248U	587.00	8	CL			T	104.4	21.1	3	107.7	18.3	2.8	96.9	U-R,MAT. REM.
1140	7- 7-82	17+ 0	170U	574.00	8	CL	32	17	T	115.0	15.6	5	112.8	14.9	.7	102.0	
1140	7- 7-82	17+ 0	170U	574.00	8	CL	32	17	T	115.0	15.6	3	114.3	15.4	.2	100.6	
1141	7- 7-82	9+97	334U	586.00	8	CL			T	105.8	18.0	3	107.3	17.7	.3	98.6	
1142	7- 7-82	15+78	225D	560.00	8	CL			T	119.3	12.7	3	117.8	13.0	-.3	101.3	FLR
RS-148	7- 8-82	12+75	100U	570.00	8	CL	30	16	T	120.1	14.7	5	113.5	14.2	.5	105.8	R-S
RS-148	7- 8-82	12+75	100U	570.00	8	CL	30	16	T	120.1	14.7	3	115.3	15.1	-.4	104.2	R-S
RS-176	7- 8-82	14+ 0	120U	570.00	8	CL	33	20	T	118.3	14.6	3	114.6	15.0	-.4	103.2	R-S
RS-176	7- 8-82	14+ 0	120U	570.00	8	CL	33	20	T	118.3	14.6	5	111.6	15.4	-.8	106.0	R-S
1143	7- 8-82	14+25	71D	564.00	8	CL			T	107.0	19.9	3	111.2	16.7	3.2	96.2	U-R,MAT. REM.
1144	7- 8-82	17+72	324U	583.00	8	CL			T	110.8	16.5	3	107.8	17.4	-.9	102.8	
1145	7- 8-82	12+ 4	240U	588.00	8	CL			T	111.4	15.3	3	108.8	17.5	-2.2	102.4	U,NO ACT.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
1146	7- 9-82	11+12	115D	562.00	8	CL			T	116.4	13.1	3	111.2	15.3	-2.2	104.7	U-R,MAT.REM.,FLR
1147	7- 9-82	15+60	291D	561.00	8	CL			T	118.5	12.6	3	118.9	12.9	-.3	99.7	FLR
1148	7- 9-82	12+62	318D	558.00	8	CL			T	118.5	12.0	3	118.0	12.9	-.9	100.4	FLR
1151	7-12-82	13+50	310U	583.00	8	CL			T	113.2	16.3	3	110.8	16.6	-.3	102.2	
1152	7-12-82	16+77	290U	583.00	8	CL			T	106.5	21.1	3	107.9	18.1	3.0	98.7	U-R
RS207A	7-13-82	15+ 0	240D	560.00	8	CL	22	10	T	124.5	11.1	3	120.6	11.9	-.8	103.2	R-S
RS207A	7-13-82	15+ 0	240D	560.00	8	CL	22	10	T	124.5	11.1	5	118.8	11.6	-.5	104.8	R-S
RS-243	7-13-82	16+ 0	110U	570.00	8	CL	37	23	T	106.6	14.3	5	112.2	15.1	-.8	95.0	R-S,U,MAT.REV.
RS-243	7-13-82	16+ 0	110U	570.00	8	CL	37	23	T	106.6	14.3	3	114.0	15.0	-.7	93.5	R-S,U,MAT. REV.
1154	7-13-82	9+61	239U	585.00	8	CL			T	113.2	16.0	3	112.2	15.9	.1	100.9	
1156	7-13-82	12+54	67U	572.00	8	CL			T	111.1	14.4	3	113.3	14.9	-.5	98.1	
1157	7-14-82	13+50	79D	566.00	8	CL			T	118.1	14.5	3	114.0	14.9	-.4	103.6	H.C.
1158	7-16-82	14+67	47D	566.00	8	CL			T	114.5	15.8	3	110.4	17.0	-1.2	103.7	FLR
1159	7-16-82	13+50	27U	567.00	8	CL			T	116.0	16.0	3	110.5	16.4	-.4	105.0	H.C.,FLR
1160	7-16-82	16+ 5	112U	570.00	8	CL	36	22	T	108.9	16.2	3	111.4	16.0	.2	97.8	
1160	7-16-82	16+ 5	112U	570.00	8	CL	36	22	T	108.9	16.2	5	110.2	16.7	-.5	98.8	
1152A	7-17-82	16+77	290U	583.00	8	CL			T	109.1	15.3	3	110.8	16.5	-1.2	98.5	RET OF 1152
1161	7-17-82	15+30	270U	590.00	8	CL			T	113.1	15.5	3	111.7	16.0	-.5	101.3	
1162	7-17-82	16+65	25U	570.00	8	CL			T	111.2	16.4	3	114.3	15.4	1.0	97.3	FLR,H.C.
1163	7-17-82	16+30	95D	567.00	8	CL			T	115.1	15.8	3	112.2	15.2	.6	102.6	FLR

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1164	7-17-82	10+60	180D	563.00	8	CL			T	113.3	13.7	3	115.3	13.4	.3	98.3	FLR
1165	7-17-82	12+63	204D	562.00	8	CL			T	108.2	19.0	3	109.5	17.1	1.9	98.8	U-R,SEE1165A,FLR
1165A	7-18-82	12+63	204D	562.00	8	CL			T	118.0	13.8	3	112.7	14.9	-1.1	104.7	RET.1165,FLR
1166	7-18-82	14+89	372D	558.00	8	CL			T	121.3	13.9	3	118.3	13.9	0.0	102.5	FLR
RS173A	7-19-82	14+ 0	220D	560.00	8	CL	29	16	T	118.5	13.4	3	115.4	14.0	-.6	102.7	R-S,FLR
RS173A	7-19-82	14+ 0	220D	560.00	8	CL	29	16	T	118.5	13.4	5	115.0	13.9	-.5	103.0	R-S,FLR
RS239A	7-19-82	16+ 0	250D	560.00	8	CL	23	11	T	126.2	11.5	3	119.6	12.5	-1.0	105.5	R-S,FLR
RS239A	7-19-82	16+ 0	250D	560.00	8	CL	23	11	T	126.2	11.5	5	120.0	12.0	-.5	105.2	R-S
1167	7-19-82	11+30	250U	587.00	8	CL			T	111.9	16.3	3	109.8	17.4	-1.1	101.9	
1168	7-19-82	13+ 1	76D	564.00	8	CL			T	114.7	16.0	3	111.2	15.6	.4	103.1	FLR
1169	7-19-82	15+10	324U	588.00	8	CL			T	119.0	15.5	3	110.8	16.1	-.6	107.4	
RS-127	7-20-82	12+ 0	260U	590.00	8	CL	37	22	T	117.3	14.6	5	110.3	16.0	-1.4	106.3	R-S
RS-127	7-20-82	12+ 0	260U	590.00	8	CL	37	22	T	117.3	14.6	3	110.5	15.9	-1.3	106.2	R-S
RS-262	7-20-82	16+60	100U	570.00	8	CL	37	24	T	118.0	14.7	3	111.9	15.6	-.9	105.5	R-S
RS-262	7-20-82	16+60	100U	570.00	8	CL	37	24	T	118.0	14.7	5	110.5	16.2	-1.5	106.8	R-S
1170	7-20-82	11+63	265D	561.00	8	CL	27	15	T	125.0	12.3	3	118.3	13.1	-.8	105.7	FLR
1170	7-20-82	11+63	265D	561.00	8	CL	27	15	T	125.0	12.3	5	116.2	12.6	-.3	107.6	FLR
1171	7-20-82	14+80	424D	558.00	8	CL			T	119.5	14.7	3	117.4	13.7	1.0	101.8	FLR
1172	7-20-82	15+33	91U	574.00	8	CL			T	115.0	14.6	3	111.0	16.1	-1.5	103.6	
RS119A	7-21-82	12+ 0	230D	560.00	8	CL	34	20	T	120.6	14.1	5	111.3	16.2	-2.1	108.4	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS119A	7-21-82	12+ 0	230D	560.00	8	CL	34	20	T	120.6	14.1	3	114.4	14.6	-.5	105.4	R-S,FLR
1173	7-22-82	14+41	258U	590.00	8	CL			T	103.8	17.1	3	110.8	16.3	.8	93.7	U-R,SEE 1173A
1174	7-22-82	10+21	123D	567.00	8	CL			T	115.3	17.0	3	108.8	16.7	.3	106.0	FLR
1175	7-22-82	10+95	356U	586.00	8	CL			T	114.3	14.6	3	109.7	16.5	-1.9	104.2	
1173A	7-23-82	14+41	258U	590.00	8	CL			T	116.5	15.3	3	110.2	16.1	-.8	105.7	RET 1173
1176	7-23-82	12+ 9	116D	563.00	8	CL			T	125.2	12.5	3	113.8	14.6	-2.1	110.0	U,NO ACT FLR
1177	7-23-82	16+49	414D	565.00	8	CL			T	110.2	14.2	3	112.3	15.6	-1.4	98.1	HC FLR
1178	7-23-82	16+16	291D	560.00	8	CL			T	118.3	15.9	3	109.8	17.3	-1.4	107.7	FLR
1179	7-24-82	12+86	427D	557.00	8	CL			T	116.6	15.1	3	113.6	15.1	0.0	102.6	HC TW1
1180	7-24-82	11+27	409D	556.00	8	CL	34	22	T	115.8	14.5	3	113.0	14.8	-.3	102.5	FLR
1180	7-24-82	11+27	409D	556.00	8	CL	34	22	T	115.8	14.5	5	111.5	15.7	-1.2	103.9	FLR
1181	7-24-82	12+92	433D	558.00	8	CL			T	107.0	15.0	3	114.8	14.5	.5	93.2	U-R MAT REM HC TW
1183	7-25-82	14+11	32D	567.00	8	CL			T	115.4	13.8	3	110.4	15.8	-2.0	104.5	FLR
1184	7-25-82	11+50	230U	592.00	8	CL			T	117.0	15.6	3	110.0	16.7	-1.1	106.4	
1185	7-25-82	17+19	130D	567.00	8	CL			T	116.4	15.3	3	111.2	16.2	-.9	104.7	FLR
1187	7-26-82	15+96	349U	584.00	8	CL			T	112.6	15.3	3	110.9	16.9	-1.6	101.5	
1188	7-26-82	11+ 0	25U	573.00	8	CL			T	110.0	17.9	3	110.6	17.0	.9	99.5	HC SET GAGE
1189	7-26-82	16+56	419D	560.00	8	CL			T	107.8	15.2	3	111.6	16.5	-1.3	96.6	HC TW2
1190	7-26-82	11+21	180D	563.00	8	CL	36	23	T	115.4	15.1	3	112.5	15.7	-.6	102.6	FLR
1191	7-26-82	13+51	390D	559.00	8	CL			T	113.3	15.3	3	113.6	14.8	.5	99.7	FLR

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1192	7-27-82	15+75	215D	562.00	8	CL			T	110.7	15.4	3	111.9	15.7	-.3	98.9	FLR
1193	7-27-82	13+50	179D	564.00	8	CL			T	116.7	14.7	3	112.3	15.6	-.9	103.9	WC SET GAGE
1194	7-27-82	13+31	300U	587.00	8	CL			T	113.1	16.4	3	109.9	16.6	-.2	102.9	
1195	7-27-82	9+58	171U	589.00	8	CL			T	111.5	17.7	3	108.3	18.2	-.5	103.0	
1196	7-28-82	9+97	104D	567.00	8	CL			T	114.8	13.8	3	112.4	15.5	-1.7	102.1	FLR
1197	7-28-82	14+96	137U	570.00	8	CL			T	112.6	17.1	3	111.7	16.8	.3	100.8	
1198	7-28-82	14+84	318D	559.00	8	CL			T	117.1	15.7	3	113.8	15.4	.3	102.9	FLR
1199	7-28-82	17+ 0	498D	545.00	8	CL			T	112.9	14.4	3	111.4	15.4	-1.0	101.3	FLR WC MH4
1200	7-28-82	15+20	40D	569.00	8	CL			T	107.7	17.4	3	111.5	16.1	1.3	96.6	U-R SEE1200A
1201	7-28-82	18+ 1	26D	571.00	8	CL			T	115.1	14.8	3	112.0	15.2	-.4	102.8	FLR
1200A	7-29-82	15+20	40D	569.00	8	CL			T	111.4	16.1	3	110.6	16.4	-.3	100.7	RET OF 1200
1202	7-29-82	17+ 5	492D	548.00	8	CL			T	111.4	12.6	3	114.2	14.5	-1.9	97.5	FLR
1203	7-29-82	10+43	15U	571.00	8	CL			T	117.9	12.8	3	111.3	15.4	-2.6	105.9	U-R SEE1203A
1204	7-29-82	16+61	309D	561.00	8	CL	30	16	T	117.0	15.3	5	115.4	14.2	1.1	101.4	U-R MAT REM
1204	7-29-82	16+61	309D	561.00	8	CL	30	16	T	117.0	15.3	3	116.8	13.8	1.5	100.2	U-R MAT REM
1205	7-29-82	16+41	245U	590.00	8	CL			T	114.8	16.8	3	111.1	16.3	.5	103.3	
1206	7-29-82	14+28	213D	564.00	8	CL			T	111.5	15.3	3	109.4	16.2	-.9	101.9	
1203A	7-30-82	10+43	15U	571.00	8	CL			T	110.7	15.1	3	112.8	15.5	-.4	98.1	RET 1203
1207	7-30-82	10+33	231U	590.00	8	CL			T	110.5	12.9	3	109.7	15.8	-2.9	100.7	U-R SEE 1207A
1208	7-30-82	17+55	52U	573.00	8	CL			T	117.0	15.3	3	110.6	15.2	.1	105.8	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1209	7-30-82	16+ 5	492D	547.00	8	CL			T	115.8	14.9	3	114.7	14.5	.4	101.0	FLR
1210	7-30-82	11+60	32D	569.00	8	CL			T	109.2	15.2	3	110.1	16.2	-1.0	99.2	
1211	7-30-82	13+15	110D	567.00	8	SC	20	8	T	120.3	9.8	5	122.7	10.9	-1.1	98.0	
1211	7-30-82	13+15	110D	567.00	8	SC	20	8	T	120.3	9.8	3	122.2	11.8	-2.0	98.4	
RS174A	7-31-82	14+ 0	370D	560.00	8	CL	34	19	T	116.2	15.2	5	112.6	15.2	0.0	103.2	R-S FLR
RS174A	7-31-82	14+ 0	370D	560.00	8	CL	34	19	T	116.2	15.2	3	112.7	15.3	-.1	103.1	R-S FLR
RS240A	7-31-82	16+ 0	380D	560.00	8	CL	34	20	T	117.3	15.1	3	113.4	15.0	.1	103.4	R-S FLR
RS240A	7-31-82	16+ 0	380D	560.00	8	CL	34	20	T	117.3	15.1	5	112.2	15.2	-.1	104.5	R-S FLR
1207A	7-31-82	10+33	231U	590.00	8	CL			T	115.1	15.1	3	110.9	16.2	-1.1	103.8	RET 1207
1212	7-31-82	16+96	329D	561.00	8	CL			T	113.5	17.1	3	111.0	16.2	.9	102.3	FLR
1213	7-31-82	12+75	214U	591.00	8	CL			T	117.4	15.9	3	110.3	15.9	0.0	106.4	
1214	7-31-82	16+ 0	338U	586.00	8	CL			T	112.0	17.0	3	109.2	17.0	0.0	102.6	
1215	7-31-82	14+49	16U	570.00	8	CL			T	118.1	15.1	3	111.6	15.8	-.7	105.8	
1216	8- 1-82	9+98	75D	569.00	8	CL			T	110.0	14.9	3	110.6	16.2	-1.3	99.5	
1217	8- 1-82	11+ 0	26U	572.00	8	CL			T	111.9	17.0	3	110.5	16.7	.3	101.3	HC SET GAGE
1218	8- 1-82	12+14	369D	561.00	8	CL			T	119.0	14.8	3	112.2	14.9	-.1	106.1	FLR
1219	8- 1-82	14+52	147D	567.00	8	CL			T	116.7	16.5	3	112.4	16.0	.5	103.8	
1220	8- 1-82	17+59	178D	567.00	8	CL	35	21	T	112.5	16.6	5	111.7	15.2	1.4	100.7	
1220	8- 1-82	17+59	178D	567.00	8	CL	35	21	T	112.5	16.6	3	112.0	15.9	.7	100.4	
1221	8- 2-82	12+94	433D	560.00	8	CL			T	112.8	15.6	3	113.6	15.0	.6	99.3	HC TW1

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

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							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1222	8- 2-82	12+26	18U	572.00	8	CL			T	104.7	20.0	3	112.2	16.6	3.4	93.3	U-R MAT REM
1223	8- 2-82	11+36	435D	560.00	8	CL			T	114.5	15.7	3	114.0	15.2	.5	100.4	
1224	8- 2-82	14+80	70D	568.00	8	CL			T	118.2	14.7	3	112.9	14.5	.2	104.7	
1225	8- 3-82	14+57	236U	593.00	8	CL			T	113.2	14.1	3	109.5	16.1	-2.0	103.4	
1226	8- 3-82	11+54	281U	590.00	8	CL			T	117.8	15.0	3	110.2	15.8	-.8	106.9	
1227	8- 3-82	11+87	91D	571.00	8	CL			T	117.7	14.6	3	117.3	13.9	.7	100.3	
1228	8- 3-82	16+10	261D	564.00	8	CL			T	115.0	17.0	3	112.5	15.9	1.1	102.2	U,NO ACT
1229	8- 3-82	9+49	75U	591.00	8	CL			T	106.9	14.8	3	108.8	16.9	-2.1	98.3	U,NO ACT
RS120A	8- 4-82	12+ 0	380D	560.00	8	CL	46	32	T	117.8	15.9	5	111.7	15.3	.6	105.5	R-S FLR
RS120A	8- 4-82	12+ 0	380D	560.00	8	CL	46	32	T	117.8	15.9	3	111.7	15.9	0.0	105.5	R-S FLR
1230	8- 4-82	16+52	325U	588.00	8	CL	42	24	T	103.7	19.5	3	107.8	17.6	1.9	96.2	U-R,SEE1230A
1231	8- 4-82	12+ 4	206D	566.00	8	CL			T	118.5	13.5	3	119.0	12.5	1.0	99.6	
1232	8- 5-82	16+60	71U	573.00	8	CL			T	116.6	16.1	3	113.8	15.4	.7	102.5	
1233	8- 5-82	15+60	130D	568.00	8	CL			T	112.7	17.1	3	111.8	16.0	1.1	100.8	U,NO ACT
RS-177	8- 6-82	14+ 0	10U	570.00	8	CL	40	25	T	118.3	16.3	3	110.2	15.8	.5	107.4	R-S
RS-177	8- 6-82	14+ 0	10U	570.00	8	CL	40	25	T	118.3	16.3	5	109.9	15.9	.4	107.6	R-S
RS-244	8- 6-82	16+ 0	10U	570.00	8	CL	38	22	T	113.2	15.3	3	112.9	15.4	-.1	100.3	R-S
RS-244	8- 6-82	16+ 0	10U	570.00	8	CL	38	22	T	113.2	15.3	5	109.7	16.6	-1.3	103.2	R-S
RS-91A	8- 7-82	11+ 0	370D	560.00	8	CL	41	26	T	116.9	15.9	3	110.6	16.7	-.8	105.7	R-S,FLR
RS-91A	8- 7-82	11+ 0	370D	560.00	8	CL	41	26	T	116.9	15.9	5	109.5	16.4	-.5	106.8	R-S FLR

PROJECT-			RIVER-		STATE-				TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1234	8- 7-82	17+ 6	231U	591.00	8	CL			T	119.4	14.3	3	109.7	16.2	-1.9	108.8	
1230A	8- 9-82	16+52	325U	588.00	8	CL			T	112.3	15.5	3	112.0	16.1	-.6	100.3	RET. 1230
1235	8- 9-82	12+ 6	307U	591.00	8	CL			T	109.5	13.9	3	110.0	15.9	-2.0	99.5	
1236	8- 9-82	12+73	100U	572.00	8	CL			T	112.1	14.1	3	110.2	16.5	-2.4	101.7	
1237	8- 9-82	11+30	326D	564.00	8	CL			T	121.3	14.0	3	116.2	14.3	-.3	104.4	
1238	8-13-82	10+50	248U	592.00	8	CL			T	119.1	15.7	3	111.4	16.2	-.5	106.9	
1239	8-13-82	12+96	309D	563.00	8	CL			T	111.7	17.1	3	111.3	16.6	.5	100.4	
1240	8-13-82	17+12	289U	590.00	8	CL			T	111.2	17.6	3	109.4	17.0	.6	101.6	
1241	8-13-82	14+44	111U	573.00	8	CL	33	20	T	117.6	14.4	3	114.2	14.7	-.3	103.0	
1241	8-13-82	14+44	111U	573.00	8	CL	33	20	T	117.6	14.4	5	113.0	14.9	-.5	104.1	
1242	8-14-82	16+60	212D	570.00	8	CL			T	113.7	15.0	3	111.7	15.6	-.6	101.8	
1243	8-14-82	14+31	225U	594.00	8	CL			T	116.5	16.1	3	109.5	16.2	-.1	106.4	
1244	8-14-82	11+89	295U	590.00	8	CL			T	112.9	17.3	3	109.0	17.2	.1	103.6	
1245	8-14-82	11+63	177D	570.00	8	CL			T	114.3	15.6	3	113.1	15.2	.4	101.1	
RS-149	8-17-82	12+73	130D	568.70	8	CL	37	24	T	116.5	15.2	5	109.7	16.4	-1.2	106.2	R-S
RS-149	8-17-82	12+73	130D	568.70	8	CL	37	24	T	116.5	15.2	3	112.6	15.4	-.2	103.5	R-S
1246	8-18-82	14+40	113D	571.00	8	CL			T	119.1	12.6	3	119.6	12.6	0.0	99.6	
1247	8-18-82	11+80	146U	574.00	8	CL			T	119.7	14.4	3	114.4	14.6	-.2	104.6	
1248	8-18-82	15+73	48U	572.00	8	CL			T	117.0	16.7	3	110.7	16.5	.2	105.7	
1249	8-18-82	13+54	260U	594.00	8	CL			T	116.4	16.2	3	111.4	15.8	.4	104.5	

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1250	8-18-82	12+75	159D	571.00	8	CL	37	23	T	112.8	14.5	3	110.8	15.6	-1.1	101.8	
1251	8-19-82	13+56	139U	575.00	8	CL			T	110.7	14.4	3	111.8	15.4	-1.0	99.0	
1252	8-19-82	16+46	413D	564.00	8	CL			T	105.6	18.9	3	109.3	17.9	1.0	96.6	H.C.
1253	8-19-82	16+30	46U	573.00	8	CL			T	115.7	16.1	3	111.7	15.8	.3	103.6	
1254	8-20-82	12+27	329D	565.00	8	CL			T	121.1	12.1	3	121.6	11.6	.5	99.6	
1255	8-20-82	16+42	245D	568.00	8	CL			T	123.6	11.9	3	119.0	12.6	-.7	103.9	
1256	8-21-82	10+98	295U	593.00	8	CL			T	111.2	17.6	3	110.2	17.1	.5	100.9	
1257	8-21-82	11+12	85U	577.00	8	CL			T	110.3	17.3	3	112.5	16.6	.7	98.0	
1258	8-21-82	12+ 0	195D	573.00	8	CL			T	121.3	11.9	3	121.8	12.2	-.3	99.6	
1259	8-21-82	9+34	48D	571.00	8	CL			T	108.9	18.6	3	114.0	15.5	3.1	95.5	U-R,SEE1259A
RS-178	8-22-82	14+ 0	120D	570.00	8	CL	23	11	T	123.7	11.0	5	121.0	11.4	-.4	102.2	R-S
RS-178	8-22-82	14+ 0	120D	570.00	8	CL	23	11	T	123.7	11.0	3	121.0	11.7	-.7	102.2	R-S
RS-245	8-22-82	16+ 0	100D	570.00	8	CL	24	13	T	124.6	12.0	5	119.9	12.0	0.0	103.9	R-S
RS-245	8-22-82	16+ 0	100D	570.00	8	CL	24	13	T	124.6	12.0	3	120.6	11.9	.1	103.3	R-S
1259A	8-22-82	9+34	48D	571.00	8	CL			T	111.0	16.2	3	113.2	15.1	1.1	98.1	RET.1259
1260	8-22-82	15+94	342D	568.00	8	CL	23	11	T	119.3	12.0	3	121.9	11.8	.2	97.9	
1260	8-22-82	15+94	342D	568.00	8	CL	23	11	T	119.3	12.0	5	120.8	11.6	.4	98.8	
1262	8-22-82	13+50	81D	572.00	8	CL			T	120.2	12.1	3	120.8	12.3	-.2	99.5	H.C.
RS-93	8-24-82	11+ 0	100D	570.00	8	CL	32	19	T	116.3	15.1	3	114.1	15.3	-.2	101.9	R-S
RS-93	8-24-82	11+ 0	100D	570.00	8	CL	32	19	T	116.3	15.1	5	113.0	14.9	.2	102.9	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION		
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1263	8-24-82	14+36	267U	594.00	8	CL			T	113.8	17.4	3	110.3	16.5	.9	103.2	
RS-175	8-25-82	14+ 0	150U	575.00	8	CL	34	20	T	117.9	15.8	3	113.0	15.5	.3	104.3	R-S
RS-175	8-25-82	14+ 0	150U	575.00	8	CL	34	20	T	117.9	15.8	5	112.4	15.4	.4	104.9	R-S
RS-261	8-25-82	17+ 0	150U	575.00	8	CL	34	20	T	116.9	15.7	3	110.6	16.3	-.6	105.7	R-S
RS-261	8-25-82	17+ 0	150U	575.00	8	CL	34	20	T	116.9	15.7	5	111.2	15.2	.5	105.1	R-S
1264	8-25-82	14+90	105U	577.00	8	CL			T	114.2	16.3	3	113.8	15.4	.9	100.4	
1265	8-25-82	12+ 1	246D	569.00	8	CL			T	108.9	20.0	3	104.8	19.2	.8	103.9	H.Z.
1266	8-25-82	12+ 6	52D	571.00	8	CL			T	116.9	15.1	3	113.3	15.4	-.3	103.2	
1267	8-25-82	15+76	340D	566.00	8	CL			T	103.4	17.9	3	107.9	17.5	.4	95.8	H.Z.
1268	8-25-82	7+60	284D	536.00	8	CL			T	109.8	16.3	3	110.3	17.2	-.9	99.5	H.C.
1269	8-26-82	9+87	139D	575.00	8	CL			T	108.7	17.3	3	108.2	17.4	-.1	100.5	
1270	8-26-82	15+99	59U	578.00	8	CL	36	22	T	118.7	14.8	3	113.1	15.4	-.6	105.0	
1271	9- 7-82	12+50	90D	574.00	8	CL	29	15	T	118.0	14.2	3	115.9	14.1	.1	101.8	
1271	9- 7-82	12+50	90D	574.00	8	CL	29	15	T	118.0	14.2	5	114.8	13.8	.4	102.8	
1272	9- 8-82	17+25	80D	570.00	8	CL			T	119.0	14.9	3	115.3	14.6	.3	103.2	
1273	9- 8-82	15+99	335D	568.00	8	CH	53	38	T	106.1	20.1	3	102.7	21.0	-.9	103.3	H.Z.
1273	9- 8-82	15+99	335D	568.00	8	CH	53	38	T	106.1	20.1	5	102.0	20.8	-.7	104.0	H.Z.
1274	9- 9-82	13+17	233D	569.00	9	CL			T	119.0	14.0	3	117.0	13.7	.3	101.7	H.Z.
1275	9-10-82	13+ 4	10U	573.00	8	CL			T	118.1	13.6	3	114.0	14.8	-1.2	103.6	
1276	9-10-82	14+64	94D	574.00	8	CL			T	120.7	14.9	3	112.8	15.3	-.4	107.0	

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1277	9-10-82	17+25	100U	575.00	8	CL			T	113.0	18.7	3	109.8	17.4	1.3	102.9	U-R,SEE1277A
1277A	9-11-82	17+25	100U	575.00	8	CL			T	114.1	15.7	3	110.2	16.4	-.7	103.5	RET.1277
1278	9-11-82	13+46	301D	568.00	8	CL			T	102.2	16.2	3	105.4	18.0	-1.8	97.0	H.Z.
1279	9-11-82	17+ 4	190D	570.00	8	CL			T	122.0	12.9	3	110.1	16.2	-3.3	110.8	U-R,MAT.REM.,HZ
1280	9-11-82	11+23	25U	572.00	8	CL			T	113.5	14.6	3	111.8	15.7	-1.1	101.5	H.C.
1281	9-11-82	16+64	305U	592.00	8	CL			T	114.8	15.9	3	110.7	16.8	-.9	103.7	
1282	9-11-82	11+48	234U	597.00	8	CL			T	118.7	14.2	3	109.8	16.2	-2.0	108.1	
RS-68	9-12-82	11+50	50U	575.00	8	CL	31	19	T	116.3	15.0	3	114.3	14.8	.2	101.7	R-S
RS-68	9-12-82	11+50	50U	575.00	8	CL	31	19	T	116.3	15.0	5	113.2	14.9	.1	102.7	R-S
1283	9-12-82	14+99	76U	576.00	8	CL			T	116.6	14.3	3	114.4	13.8	.5	101.9	
1284	9-12-82	13+50	80D	574.00	8	CL			T	105.0	18.9	3	106.2	18.2	.7	98.9	H.C.
1286	9-12-82	16+95	130U	578.00	8	CL			T	112.5	15.1	3	112.1	15.4	-.3	100.4	
1287	9-13-82	15+99	250D	572.00	8	CL			T	113.6	15.3	3	110.6	16.7	-1.4	102.7	H.Z.
RS-70	9-17-82	10+ 0	180D	570.00	8	CL	34	21	T	117.5	14.7	3	113.8	15.1	-.4	103.3	R-S
RS-70	9-17-82	10+ 0	180D	570.00	8	CL	34	21	T	117.5	14.7	5	112.2	15.8	-1.1	104.7	R-S
1288	9-19-82	10+15	241D	569.00	8	CL			T	120.6	14.3	3	113.8	14.6	-.3	106.0	
1289	9-20-82	10+33	100U	580.00	8	CL			T	111.8	12.4	3	112.7	14.5	-2.1	99.2	U,NO ACT.
1290	9-20-82	9+80	91U	590.00	8	CL	35	21	T	114.1	15.3	3	113.0	15.6	-.3	101.0	
1291	9-20-82	17+84	253U	594.00	8	CL			T	114.5	14.7	3	112.4	15.4	-.7	101.9	
1293	9-21-82	12+83	56D	575.00	8	CL			T	115.9	15.8	3	114.6	15.3	.5	101.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

					CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
						ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1294	9-21-82	13+23	189D	573.00	8	CH			T	93.8	29.4	3	91.6	28.5	.9	102.4	H.Z.
RS-150	9-22-82	12+75	300D	570.00	8	CL	27	14	T	122.2	12.9	5	118.0	13.2	-.3	103.6	R-S,H.Z.
RS-150	9-22-82	12+75	300D	570.00	8	CL	27	14	T	122.2	12.9	3	120.3	13.0	-.1	101.6	R-S,H.Z.
1295	9-22-82	16+41	70U	578.00	8	CL			T	118.9	13.2	3	113.8	14.6	-1.4	104.5	
1297	9-23-82	14+25	239U	594.00	8	CL			T	115.8	14.4	3	111.9	15.7	-1.3	103.5	
1299	9-23-82	12+ 5	78D	573.00	8	CL			T	116.8	15.5	3	112.7	15.5	0.0	103.6	
1300	9-25-82	11+96	163U	581.00	8	CL			T	116.1	14.9	3	115.0	15.0	-.1	101.0	
1301	9-26-82	12+70	52D	577.00	8	CL			T	113.8	15.7	3	114.2	15.8	-.1	99.6	
1302	9-27-82	14+10	279D	573.00	8	CL			T	105.0	17.4	3	105.7	18.5	-1.1	99.3	H.Z.
1303	9-27-82	16+80	130D	576.00	8	CL			T	116.7	15.4	3	113.5	16.0	-.6	102.8	
1304	9-27-82	13+50	179D	574.00	8	CL			T	118.9	13.6	3	115.4	14.6	-1.0	103.0	H.C.
1305	9-28-82	11+86	231U	596.00	8	CL			T	118.4	14.2	3	113.6	15.0	-.8	104.2	
1307	9-28-82	15+27	42D	578.00	8	CL			F	317.0	14.4	3	115.6	14.6	-.2	101.2	
1308	9-29-82	9+72	89D	572.00	8	CL			T	114.4	15.2	3	114.6	15.2	0.0	99.8	
1309	9-29-82	16+50	26U	577.00	8	CL			T	110.0	15.7	3	113.4	15.8	-.1	97.0	H.C.
1312	9-30-82	13+86	244D	574.00	8	CL			T	107.1	16.9	3	106.9	18.1	-1.2	100.2	H.Z.
RS-122	10- 1-82	13+ 0	150U	580.00	8	CL	34	21	T	113.1	13.8	5	112.0	15.2	-1.4	101.0	R-S
RS-122	10- 1-82	13+ 0	150U	580.00	8	CL	34	21	T	113.1	13.8	3	113.2	15.6	-1.8	99.9	R-S
RS-94	10- 1-82	11+ 0	250D	570.00	8	CL	40	25	T	114.8	15.3	5	110.8	15.9	-.6	103.6	R-S
RS-94	10- 1-82	11+ 0	250D	570.00	8	CL	40	25	T	114.8	15.3	3	111.6	16.1	-.8	102.9	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1313	10- 1-82	13+77	61U	579.00	8	CL	39	24	T	110.1	17.3	3	110.1	17.1	.2	100.0	
RS-97	10- 2-82	11+ 0	100U	580.00	8	CL	34	18	T	116.6	16.2	5	112.4	15.4	.8	103.7	R-S
RS-97	10- 2-82	11+ 0	100U	580.00	8	CL	34	18	T	116.6	16.2	3	113.3	15.9	.3	102.9	R-S
1314	10- 2-82	13+ 0	125U	579.00	8	CL			T	116.3	14.9	3	111.6	16.1	-1.2	104.2	
1316	10- 2-82	16+91	175U	585.00	8	CL			T	107.0	19.7	3	102.5	20.5	-.8	104.4	
1317	10- 3-82	15+ 9	235U	597.00	8	CL			T	116.7	15.3	3	112.6	14.5	.8	103.6	
1318	10- 3-82	11+75	49U	582.00	8	CL			T	112.0	16.3	3	106.7	18.2	-1.9	105.0	
1319	10- 3-82	10+27	138D	577.00	8	CL			T	102.3	19.3	3	98.5	22.5	-3.2	103.9	U-R SEE 1319A
1320	10- 3-82	16+ 5	15D	580.00	8	CL			T	102.3	19.3	3	103.4	20.6	-1.3	98.9	
1321	10- 4-82	14+42	111U	581.00	8	CH	88	66	T	98.5	24.4	5	95.0	25.9	-1.5	103.7	
1321	10- 4-82	14+42	111U	581.00	8	CH	88	66	T	98.5	24.4	3	90.4	25.7	-1.3	109.0	
1322	10- 4-82	17+19	245D	573.00	8	CL			T	108.5	19.4	3	102.8	20.4	-1.0	105.5	H.Z.
RS-209	10- 5-82	15+ 0	340D	570.00	8	CH	57	39	T	101.3	18.4	3	104.9	19.3	-.9	96.6	R-S,H.Z.
RS-209	10- 5-82	15+ 0	340D	570.00	8	CH	57	39	T	101.3	18.4	5	103.2	20.4	-2.0	98.2	R-S,H.Z.
1319A	10- 5-82	10+27	138D	577.00	8	CL			T	109.0	18.7	3	105.1	18.9	-.2	103.7	RET. OF 1319
1323	10- 5-82	13+24	44D	579.00	8	CL			T	106.0	19.3	3	101.5	21.2	-1.9	104.4	
1324	10- 5-82	16+ 2	148U	584.00	8	CL			T	110.5	18.6	3	103.3	20.2	-1.6	107.0	
RS-123	10- 6-82	12+ 0	40U	580.00	8	CH	60	46	T	112.4	16.2	5	103.3	19.5	-3.3	108.8	R-S,U-R,REV.
RS-123	10- 6-82	12+ 0	40U	580.00	8	CH	60	46	T	112.4	16.2	3	103.8	19.6	-3.4	108.3	R-S,U-R,REV.
1325	10- 6-82	11+90	104D	578.00	8	CL			T	102.4	18.4	3	103.4	18.5	-.1	99.0	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1326	10- 6-82	14+25	44D	580.00	8	CL			T	104.3	21.0	3	100.6	22.1	-1.1	103.7	
1327	10- 6-82	13+50	25U	580.00	8	CL			T	116.7	13.4	3	119.1	13.2	.2	98.0	H.C.
RS-98	10- 7-82	11+ 0	20U	580.00	8	CH	67	51	T	101.2	19.2	3	102.4	20.2	-1.0	98.8	R-S
RS-98	10- 7-82	11+ 0	20U	580.00	8	CH	67	51	T	101.2	19.2	5	101.2	21.5	-2.3	100.0	R-S
RS-212	10- 8-82	15+ 0	50U	580.00	8	CH	62	49	T	102.8	16.2	3	103.9	19.6	-3.4	98.9	R-S,U-R,REW.
1328	10- 8-82	15+37	299D	573.00	8	CL			T	101.4	18.1	3	103.7	20.3	-2.2	97.8	U,NO ACT. H.Z.
1329	10-11-82	12+76	187U	584.00	8	CL			T	109.8	17.9	3	105.0	19.7	-1.8	104.6	
1330	10-11-82	9+70	97D	577.00	8	CL	30	17	T	117.4	14.5	3	115.2	14.3	.2	101.9	
1331	10-12-82	15+66	89U	584.00	8	CL			T	107.4	19.3	3	102.2	21.4	-2.1	105.1	U,NO ACT
1332	10-12-82	11+31	25U	582.00	8	CL			T	125.2	12.0	3	121.6	12.1	-.1	103.0	H.C.
1333	10-12-82	16+84	70D	580.00	8	CL			T	109.8	19.3	3	103.9	20.1	-.8	105.7	
RS-96	10-13-82	11+50	175U	585.00	8	CH	61	41	T	105.5	19.1	3	104.7	19.5	-.4	100.8	R-S
RS-96	10-13-82	11+50	175U	585.00	8	CH	61	41	T	105.5	19.1	5	102.8	19.8	-.7	102.6	R-S
1336	10-13-82	15+63	77U	585.00	8	CL			T	107.3	20.9	3	101.5	21.4	-.5	105.7	
1337	10-14-82	15+21	326D	573.00	8	CL			T	119.3	13.6	3	116.3	13.1	.5	102.6	
1338	10-14-82	17+ 1	79U	584.00	8	CH			T	107.0	17.3	3	104.4	19.6	-2.3	102.5	U-R , REW
1339	10-14-82	12+39	116U	585.00	8	CH			T	107.4	19.9	3	99.8	22.2	-2.3	107.6	U-R , REW
1340	10-15-82	13+23	147D	578.00	8	CL	30	18	T	121.7	12.5	5	115.8	13.8	-1.3	105.1	
1340	10-15-82	13+23	147D	578.00	8	CL	30	18	T	121.7	12.5	3	115.6	13.9	-1.4	105.3	
RS-124	10-16-82	12+ 0	30D	580.00	8	CH	72	57	T	102.9	20.5	5	101.7	19.1	1.4	101.2	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-124	10-16-82	12+ 0	30D	580.00	8	CH	72	57	T	102.9	20.5	3	101.6	20.7	-.2	101.3	R-S
RS-153	10-16-82	12+75	30D	580.00	8	CH	67	52	T	104.1	18.9	5	102.9	19.8	-.9	101.2	R-S
RS-153	10-16-82	12+75	30D	580.00	8	CH	67	52	T	104.1	18.9	3	103.4	21.0	-2.1	100.7	R-S,U,NO ACT
1341	10-16-82	15+93	190U	590.00	8	CL			T	107.9	21.0	3	104.3	20.0	1.0	103.5	
1343	10-17-82	11+57	73U	587.00	8	CL			T	104.5	21.4	3	100.5	22.2	-.8	104.0	
1344	10-17-82	18+19	126U	588.00	8	CL			T	120.0	15.8	3	110.2	16.6	-.8	108.9	
1345	10-17-82	14+22	298D	575.00	8	CL			T	119.4	14.2	3	117.8	13.4	.8	101.4	
1346	10-18-82	14+13	53D	581.00	8	CL			T	111.6	18.4	3	107.0	18.5	-.1	104.3	
1347	10-18-82	16+21	65D	579.00	8	CL			T	110.8	19.5	3	104.7	19.4	.1	105.8	
1348	10-18-82	12+74	240D	572.00	8	CL			T	117.8	13.7	3	116.9	13.4	.3	100.8	H.C.
1349	10-18-82	17+50	173D	578.00	8	CL			T	112.3	16.1	3	113.7	16.0	.1	98.8	
1350	10-21-82	15+93	9U	582.00	8	CH	51	35	T	112.7	18.5	3	107.0	18.3	.2	105.3	
1351	10-21-82	12+ 3	5D	584.00	8	CL			T	110.5	18.6	3	106.3	18.0	.6	104.0	
1352	10-21-82	13+50	24U	585.00	8	CL			T	112.1	15.3	3	110.2	16.2	-.9	101.7	H.C.
1353	10-22-82	13+72	221D	577.00	8	CL			T	121.3	13.6	3	117.3	13.6	0.0	103.4	
1354	10-22-82	16+16	71U	587.00	8	CL			T	104.0	20.9	3	97.8	22.9	-2.0	106.3	
1355	10-22-82	10+79	27D	584.00	8	CL			T	112.6	15.4	3	105.7	18.4	-3.0	106.5	U-R,SEE 1355A
1356	10-22-82	15+ 0	190U	591.00	8	CL			T	102.8	25.0	3	100.1	23.0	2.0	102.7	U-R,SEE 1356A
RS-213	10-23-82	15+ 0	80D	581.00	8	CH	54	38	T	110.8	17.3	5	106.2	18.1	-.8	104.3	R-S
RS-213	10-23-82	15+ 0	80D	581.00	8	CH	54	38	T	110.8	17.3	3	105.9	17.6	-.3	104.6	R-S

PROJECT-		RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1355A	10-23-82	10+79	27D	584.00	8	CL			T	104.1	19.4	3	105.7	19.8	-.4	98.5	RET OF 1355
1357	10-23-82	16+35	50D	582.00	8	CL			T	112.2	17.9	3	105.8	19.6	-1.7	106.0	
1358	10-23-82	12+58	142U	589.00	8	CL			T	108.4	18.4	3	107.5	18.5	-.1	100.8	
1359	10-24-82	10+30	21U	583.00	8	CL			T	119.2	12.9	3	117.4	13.3	-.4	101.5	H.C.
1360	10-24-82	16+83	58U	589.00	8	CL	38	25	T	117.7	14.9	5	115.0	14.3	.6	102.3	
1360	10-24-82	16+83	58U	589.00	8	CL	38	25	T	117.7	14.9	3	111.7	16.6	-1.7	105.4	
1361	10-24-82	12+90	57D	586.00	8	CL			T	107.6	18.9	3	106.1	19.5	-.6	101.4	
1362	10-24-82	17+ 7	190U	592.00	8	CL			T	108.6	16.7	3	109.4	17.5	-.8	99.3	
RS-248	10-25-82	16+ 0	172U	590.00	8	CH	55	38	T	111.4	19.8	3	103.6	20.5	-.7	107.5	R-S
RS-248	10-25-82	16+ 0	172U	590.00	8	CH	55	38	T	111.4	19.8	5	103.8	19.9	-.1	107.3	R-S
1363	10-25-82	13+69	76D	585.00	8	CL			T	102.9	15.7	3	107.3	17.9	-2.2	95.9	U,NO ACT
1365	10-25-82	10+19	37U	585.00	8	CL			T	102.1	20.9	3	103.2	20.4	.5	98.9	
1366	10-25-82	11+86	149U	590.00	8	CL			T	103.4	18.1	3	104.0	20.2	-2.1	99.4	U,NO ACT
RS-155	10-26-82	12+72	150U	591.00	8	CH	56	41	T	114.9	15.9	3	107.4	18.0	-2.1	107.0	R-S,U,NO ACT
RS-155	10-26-82	12+72	150U	591.00	8	CH	56	41	T	114.9	15.9	5	109.5	16.4	-.5	104.9	R-S
1367	10-26-82	17+16	175U	591.00	8	CL			T	99.5	25.3	3	93.9	24.9	.4	106.0	
1368	10-26-82	12+69	291D	575.00	8	CL			T	120.9	13.3	3	116.1	13.8	-.5	104.1	
RS-263	10-27-82	16+57	150U	591.00	8	CH	85	65	T	104.4	21.8	3	98.6	23.6	-1.8	105.9	R-S
RS-263	10-27-82	16+57	150U	591.00	8	CH	85	65	T	104.4	21.8	5	98.7	20.9	.9	105.8	R-S
1369	10-27-82	18+35	275D	575.00	8	CL			T	114.5	14.8	3	116.2	13.9	.9	98.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1370	10-27-82	14+84	58U	590.00	8	CH	56	41	T	101.4	16.5	3	104.2	18.7	-2.2	97.3	U,NO ACT
1371	10-27-82	11+78	73U	589.00	8	CL			T	110.5	15.2	3	110.7	16.2	-1.0	99.8	
1372	10-27-82	11+78	195U	592.00	8	CL			T	101.4	17.4	3	105.1	19.8	-2.4	96.5	U-R,REW
1373	10-28-82	15+50	294D	577.00	8	CL			T	119.6	13.6	3	116.9	14.2	-.6	102.3	
1375	10-28-82	11+60	201D	577.00	8	CL			T	120.3	14.0	3	116.5	14.0	0.0	103.3	
1377	10-30-82	13+98	95D	586.00	8	CL			T	115.2	15.7	3	109.5	16.7	-1.0	105.2	
RS-181	11- 5-82	14+ 0	200U	592.00	8	CH	65	49	T	104.6	20.6	3	105.4	19.4	1.2	99.2	R-S,U,NO ACT.
RS-181	11- 5-82	14+ 0	200U	592.00	8	CH	65	49	T	104.6	20.6	5	101.8	20.4	.2	102.8	R-S
RS-71	11- 5-82	10+ 5	200U	592.00	8	CL	44	27	T	114.5	16.3	3	108.1	16.9	-.6	105.9	R-S
RS-71	11- 5-82	10+ 5	200U	592.00	8	CL	44	27	T	114.5	16.3	5	109.3	17.2	-.9	104.8	R-S
1379	11- 6-82	14+94	60D	587.00	8	CL			T	110.9	17.1	3	107.3	17.4	-.3	103.4	
1380	11- 6-82	11+28	102D	584.00	8	CL	44	28	T	114.6	14.7	3	110.7	16.4	-1.7	103.5	
1380	11- 6-82	11+28	102D	584.00	8	CL	44	28	T	114.6	14.7	5	112.1	15.1	-.4	102.2	
1381	11- 6-82	18+14	55U	588.00	8	CL			T	108.0	16.8	3	106.2	19.0	-2.2	101.7	U,NO ACT.
1382	11- 6-82	16+25	31D	588.00	8	CL			T	112.3	17.2	3	109.3	17.3	-.1	102.7	
RS-182	11- 7-82	14+ 0	70U	590.00	8	CH	57	42	T	101.8	17.4	3	103.8	18.6	-1.2	98.1	R-S
RS-182	11- 7-82	14+ 0	70U	590.00	8	CH	57	42	T	101.8	17.4	5	105.9	19.9	-2.5	96.1	R-S
1385	11- 7-82	17+10	25U	591.00	8	CL			T	112.2	16.5	3	113.4	15.4	1.1	98.9	U,NO ACT.
RS-125	11- 8-82	12+ 0	150D	580.00	8	CH	65	50	T	107.9	19.0	5	103.2	19.6	-.6	104.6	R-S
RS-125	11- 8-82	12+ 0	150D	580.00	8	CH	65	50	T	107.9	19.0	3	103.1	20.1	-1.1	104.7	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
RS-249	11- 8-82	16+ 0	50U	590.00	8	CH	69	51	T	107.2	18.5	5	101.9	19.6	-1.1	105.2	R-S
RS-249	11- 8-82	16+ 0	50U	590.00	8	CH	69	51	T	107.2	18.5	3	104.4	19.6	-1.1	102.7	R-S
1386	11- 8-82	16+46	80D	588.00	8	CH			T	97.2	24.6	3	100.2	22.4	2.2	97.0	U-R, SEE 1386A
1387	11- 8-82	11+22	41D	585.00	8	CL			T	109.4	15.4	3	111.0	16.8	-1.4	98.6	
1388	11- 8-82	16+50	26U	590.00	8	CL			T	101.1	17.1	3	106.3	18.1	-1.0	95.1	H.C.
RS-156	11- 9-82	12+75	25U	590.00	8	CH	52	37	T	105.7	13.8	5	108.0	17.4	-3.6	97.9	R-S,U,NO ACT.
RS-156	11- 9-82	12+75	25U	590.00	8	CH	52	37	T	105.7	13.8	3	109.5	17.1	-3.3	96.5	R-S,U,NO ACT.
1386A	11- 9-82	16+46	80D	588.00	8	CH			T	108.7	18.5	3	106.3	19.2	-.7	102.3	RET 1386
1389	11- 9-82	11+13	134U	591.00	8	CH			T	104.6	18.8	3	102.2	20.6	-1.8	102.3	
1390	11- 9-82	14+18	120D	587.00	8	CH	76	58	T	98.7	21.0	3	100.9	22.2	-1.2	97.8	
1391	11- 9-82	10+ 9	84D	580.00	8	CL			T	107.4	14.0	3	112.0	14.8	-.8	95.9	
RS-154	11-10-82	12+75	200D	580.00	8	CH	73	49	T	109.5	19.2	5	102.5	21.2	-2.0	106.8	R-S
RS-154	11-10-82	12+75	200D	580.00	8	CH	73	49	T	109.5	19.2	3	102.0	21.4	-2.2	107.4	R-S,U,NO ACT.
RS-265	11-10-82	16+56	80D	590.30	8	CH	67	44	T	103.5	19.8	5	102.9	18.9	.9	100.6	R-S
RS-265	11-10-82	16+56	80D	590.30	8	CH	67	44	T	103.5	19.8	3	105.2	19.4	.4	98.4	R-S
1392	11-10-82	10+94	13U	589.00	8	CH			T	109.3	19.3	3	101.7	20.9	-1.6	107.5	
1394	11-10-82	13+35	79D	590.00	8	CH			T	102.2	20.2	3	100.8	21.5	-1.3	101.4	
RS-264	11-15-82	16+57	25U	590.30	8	CH	54	35	T	108.2	18.2	5	108.5	17.3	.9	99.7	R-S
RS-264	11-15-82	16+57	25U	590.30	8	CH	54	35	T	108.2	18.2	3	107.9	18.2	0.0	100.3	R-S
1395	11-15-82	16+60	92D	592.00	8	CH			T	105.7	19.8	3	98.4	21.9	-2.1	107.4	U,NO ACT.,H.C.

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-			DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1396	11-16-82	11+40	217U	596.00	8	CH			T	109.2	15.5	3	105.6	19.0	-3.5	103.4	U-R,RET LATER
1398	11-16-82	14+76	94U	595.00	8	CL			T	97.4	16.9	3	105.8	18.7	-1.8	92.1	U-R,SEE 1398A
RS-157	11-17-82	12+72	30D	590.40	8	CH	61	46	T	107.0	19.2	5	105.8	19.0	.2	101.1	R-S
RS-157	11-17-82	12+72	30D	590.40	8	CH	61	46	T	107.0	19.2	3	105.3	19.0	.2	101.6	R-S
1398A	11-17-82	14+76	94U	595.00	8	CL			T	108.2	18.2	3	104.8	18.7	-.5	103.2	RET. 1398
1400	11-17-82	14+85	225U	597.00	8	CH			T	102.2	20.9	3	102.6	21.0	-.1	99.6	
1402	11-18-82	12+75	11U	592.00	8	CH			T	104.2	17.7	3	103.1	20.4	-2.7	101.1	U,NO ACT HC
1403	11-22-82	11+36	25U	586.00	8	CL			T	108.1	17.4	3	110.7	16.7	.7	97.7	H.C.
RS-72	5- 5-83	10+ 0	50U	590.00	8	CH	68	54	T	104.7	21.2	3	102.0	20.9	.3	102.6	R-S
RS-72	5- 5-83	10+ 0	50U	590.00	8	CH	68	54	T	104.7	21.2	5	103.0	20.4	.8	101.7	R-S
RS-250	5- 6-83	16+ 0	30D	590.00	8	CH	66	49	T	101.6	25.4	5	100.9	22.0	3.4	100.7	R-S,POSS.LAB ERR.
RS-250	5- 6-83	16+ 0	30D	590.00	8	CH	66	49	T	101.6	25.4	3	99.3	22.7	2.7	102.3	R-S,POSS.LAB ERR.
RS-268	5-10-83	18+33	250U	597.00	8	CH	52	40	T	115.3	17.8	3	108.8	17.4	.4	106.0	R-S
RS-268	5-10-83	18+33	250U	597.00	8	CH	52	40	T	115.3	17.8	5	108.7	17.3	.5	106.1	R-S
1408	5-10-83	13+50	179D	591.00	8	CL			T	115.2	16.3	3	108.8	17.4	-1.1	105.9	H.C.
1410	5-10-83	17+58	205D	582.00	8	CL			T	101.6	15.4	3	111.2	16.6	-1.2	91.4	U-R,SEE1410A
1410A	5-11-83	17+58	205D	582.00	8	CL			T	118.7	15.3	3	112.8	15.5	-.2	105.2	RET. 1410
1413	5-12-83	10+99	25U	592.00	8	CL			T	110.2	18.0	3	109.3	17.7	.3	100.8	H.C.
1414	5-12-83	18+ 4	210U	602.00	8	CH			T	108.0	20.5	3	102.5	21.9	-1.4	105.4	
RS-214	5-13-83	15+ 0	200D	580.00	8	CL	45	31	T	111.0	19.6	3	110.8	17.0	2.6	100.2	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-214	5-13-83	15+ 0	200D	580.00	8	CL	45	31	T	111.0	19.6	5	110.1	17.1	2.5	100.8	R-S
1416	5-16-83	16+86	110D	585.00	8	CH			T	105.9	22.8	3	101.2	21.5	1.3	104.6	U,NO ACT.
1420	5-17-83	16+50	25U	592.00	8	CL			T	112.8	16.8	3	108.3	17.5	-.7	104.2	H.C.
1422	5-18-83	17+10	200D	585.00	8	CH			T	104.4	20.1	3	103.1	21.3	-1.2	101.3	
1423	5-20-83	12+18	160D	588.00	8	CH			T	101.5	20.9	3	98.9	22.6	-1.7	102.6	
1424	5-20-83	14+64	225D	580.00	8	CL			T	106.5	18.4	3	110.5	16.9	1.5	96.4	U-R,SEE1424A
1425	5-21-83	17+34	208U	600.00	8	CL			T	108.3	17.9	3	111.4	16.3	1.6	97.2	U-R,SEE1425A
1427	5-21-83	14+71	158D	585.00	8	CL	28	16	T	112.6	16.3	3	114.7	14.6	1.7	98.2	U-R,REW.
1427	5-21-83	14+71	158D	585.00	8	CL	28	16	T	112.6	16.3	5	114.2	13.7	2.6	98.6	U-R,REW.
1396A	5-23-83	11+40	217U	596.00	8	CL			T	110.0	17.3	3	107.0	17.8	-.5	102.8	RET. 1396
1424A	5-23-83	14+64	225D	580.00	8	CL			T	118.3	15.6	3	114.0	14.9	.7	103.8	RET. 1424
1428	5-23-83	14+34	219D	581.00	8	CL			T	112.1	17.7	3	109.3	17.3	.4	102.6	
1425A	5-24-83	17+34	208U	600.00	8	CL			T	115.2	15.7	3	114.3	15.4	.3	100.8	RET. 1425
1431	5-24-83	15+ 0	141D	587.00	8	CL			T	116.3	15.5	3	115.5	13.9	1.6	100.7	U-R,SEE 1431A
1432	5-24-83	12+ 1	219D	585.00	8	CL			T	115.4	16.8	3	114.1	14.9	1.9	101.1	U-R,SEE 1432A
1433	5-24-83	14+ 4	139U	597.00	8	CL			T	110.6	18.5	3	107.1	18.2	.3	103.3	
1436	5-31-83	14+46	70U	595.00	8	CH			T	102.4	22.6	3	98.9	23.7	-1.1	103.5	
1432A	6- 1-83	12+ 1	219D	586.00	8	CL			T	113.8	14.9	3	115.0	14.7	.2	99.0	RET. 1432
1439	6- 1-83	17+95	170D	586.00	8	CH			T	107.6	19.0	3	104.2	20.2	-1.2	103.3	
1440	6- 1-83	10+88	132U	595.00	8	CH	60	47	T	106.3	20.6	5	101.9	21.1	-.5	104.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1440	6- 1-83	10+88	132U	595.00	8	CH	60	47	T	106.3	20.6	3	102.2	19.5	1.1	104.0	U,NO ACT.
1441	6- 1-83	14+43	60D	592.00	8	CL			T	102.4	18.7	3	101.0	19.7	-1.0	101.4	
RS-183	6- 2-83	14+ 0	70D	590.00	8	CL	40	29	T	112.0	12.4	5	110.0	16.2	-3.8	101.8	R-S
RS-183	6- 2-83	14+ 0	70D	590.00	8	CL	40	29	T	112.0	12.4	3	111.2	15.3	-2.9	100.7	R-S
1431A	6- 6-83	15+ 0	141D	585.00	8	CL			T	115.4	14.6	3	112.4	15.3	-.7	102.7	RET. 1431
1442	6- 6-83	15+78	134U	599.00	8	CH			T	105.3	22.3	3	97.3	24.2	-1.9	108.2	
1443	6- 6-83	13+61	55U	593.00	8	CL			T	103.8	14.6	3	106.8	17.4	-2.8	97.2	U-R,SEE 1443A
1444	6- 6-83	17+25	124D	594.00	8	CH			T	94.8	18.3	3	99.4	22.5	-4.2	95.4	U-R,SEE 1444A
1443A	6- 7-83	10+61	55U	593.00	8	CL			T	109.6	17.6	3	107.2	17.5	.1	102.2	RET. 1443
1445	6- 7-83	15+63	20D	595.00	8	CL			T	114.8	16.7	3	105.9	18.9	-2.2	108.4	U,NO ACT.
1446	6- 7-83	13+23	50U	596.00	8	CH			T	92.9	20.5	3	101.8	21.0	-.5	91.3	U-R,REW.&RER.
1448	6- 7-83	13+50	25U	594.00	8	CL			T	110.3	13.6	3	111.8	15.7	-2.1	98.7	U,NO ACT. HC
1444A	6- 8-83	17+25	124D	594.00	8	CH			T	100.5	20.5	3	102.7	20.4	.1	97.9	RET. 1444
1449	6- 8-83	14+34	246D	582.00	8	CL			T	112.0	14.4	3	111.3	15.7	-1.3	100.6	
1450	6- 8-83	14+16	139U	605.00	8	CL-CH	50	38	T	115.5	16.5	3	108.5	18.2	-1.7	106.5	
1451	6- 8-83	17+66	229D	586.00	8	CH			T	111.1	19.4	3	101.2	21.2	-1.8	109.8	
1452	6- 8-83	15+87	82U	598.00	8	CL			T	102.9	20.0	3	106.2	19.3	.7	96.9	
1453	6- 8-83	11+87	58U	598.00	8	CL			T	108.5	18.5	3	106.4	18.1	.4	102.0	
1454	6- 9-83	14+64	270D	581.00	8	CL			T	114.8	15.1	3	112.2	15.0	.1	102.3	
1455	6- 9-83	14+ 2	25U	598.00	8	CL			T	112.0	16.0	3	111.0	16.4	-.4	100.9	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION		
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1457	6- 9-83	16+15	5U	597.00	8	CH			T	102.5	20.0	3	102.6	20.9	-.9	99.9	
1458	6- 9-83	11+00	20D	594.00	8	CL			T	106.9	16.1	3	107.5	18.1	-2.0	99.4	
1459	6- 9-83	13+50	80D	592.00	8	CL			T	110.4	15.0	3	112.9	15.4	-.4	97.8	H.C.
1460	6- 9-83	14+65	133U	602.00	8	CH	51	38	T	111.1	16.6	3	109.2	16.9	-.3	101.7	
1460	6- 9-83	14+65	133U	602.00	8	CH	51	38	T	111.1	16.6	5	110.1	16.0	.6	100.9	
RS-180	6-10-83	14+ 0	300D	580.00	8	CL	47	35	T	111.4	16.1	5	107.6	17.3	-1.2	103.5	R-S
RS-180	6-10-83	14+ 0	300D	580.00	8	CL	47	35	T	111.4	16.1	3	108.6	16.8	-.7	102.6	R-S
RS-99	6-10-83	11+ 0	60D	590.00	8	CH	60	47	T	104.6	20.1	3	103.5	20.6	-.5	101.1	R-S
RS-99	6-10-83	11+ 0	60D	590.00	8	CH	60	47	T	104.6	20.1	5	103.1	20.2	-.1	101.5	R-S
1461	6-10-83	12+42	222D	585.00	8	CL			T	111.2	15.6	3	113.9	15.1	.5	97.6	
1462	6-10-83	17+85	55U	600.00	8	CL			T	103.6	15.8	3	107.4	17.9	-2.1	96.5	U,NO ACT.
1463	6-10-83	9+97	150U	599.00	8	CL			T	114.8	14.2	3	109.7	15.9	-1.7	104.6	
1464	6-10-83	15+96	30D	598.00	8	CH			T	104.1	22.4	3	99.9	22.9	-.5	104.2	
1466	6-10-83	15+95	149U	604.00	8	CL			T	107.1	18.3	3	104.1	19.1	-.8	102.9	
RS-215	6-11-83	15+ 0	120U	600.00	8	CH	60	46	T	103.1	17.5	5	106.1	18.3	-.8	97.2	R-S
RS-215	6-11-83	15+ 0	120U	600.00	8	CH	60	46	T	103.1	17.5	3	105.8	18.7	-1.2	97.4	R-S
RS-247	6-11-83	16+ 0	310D	580.00	8	CL	34	12	T	114.8	14.9	5	112.6	14.9	0.0	102.0	R-S
RS-247	6-11-83	16+ 0	310D	580.00	8	CL	34	12	T	114.8	14.9	3	114.0	13.8	1.1	100.7	R-S,U,NO ACT.
1467A	6-11-83	12+53	15D	598.00	8	CH			T	101.9	23.3	3	99.8	22.2	1.1	102.1	U,NO ACT RT 1467
1467	6-11-83	12+53	15D	598.00	8	CH			T	93.0	22.5	3	98.8	23.2	-.7	94.1	U-R,SEE1467A

PROJECT-			RIVER-			STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1468	6-11-83	12+25	150U	602.00	8	CH			T	105.8	19.4	3	97.6	21.8	-2.4	108.4	U-R,SEE1468A
1470	6-11-83	16+48	147D	589.00	8	CL	29	17	T	114.8	15.3	3	115.2	14.5	.8	99.7	
RS-101	6-12-83	11+ 0	160U	600.00	8	CL	43	31	T	118.2	15.1	5	109.0	16.9	-1.8	108.4	R-S
RS-101	6-12-83	11+ 0	160U	600.00	8	CL	43	31	T	118.2	15.1	3	110.2	16.9	-1.8	107.3	R-S
RS-128	6-12-83	12+ 0	150U	600.00	8	CH	58	45	T	103.8	17.3	5	103.0	20.2	-2.9	100.8	R-S,U,NO ACT.
RS-128	6-12-83	12+ 0	150U	600.00	8	CH	58	45	T	103.8	17.3	3	104.3	19.5	-2.2	99.5	R-S,U,NO ACT.
1471	6-12-83	15+42	122D	588.00	8	CL			T	112.0	14.6	3	113.6	14.6	0.0	98.6	
1472	6-12-83	17+31	38U	601.00	8	CH			T	108.2	19.4	3	102.1	21.0	-1.6	106.0	
1468A	6-13-83	12+25	150U	602.00	8	CH			T	105.8	20.2	3	102.0	20.4	-.2	103.7	RET. 1468
1474	6-13-83	10+ 9	78D	587.00	8	CH			T	108.8	19.2	3	103.0	20.4	-1.2	105.6	
1475	6-13-83	16+17	315D	583.00	8	CL			T	102.1	16.8	3	106.8	18.2	-1.4	95.6	
1476	6-13-83	12+69	189D	589.00	8	CL			T	121.2	13.9	3	115.2	14.6	-.7	105.2	
1477	6-13-83	16+52	89D	592.00	8	CL			T	100.0	19.0	3	105.4	19.0	0.0	94.9	U,NO ACT.
1478	6-14-83	12+87	270D	585.00	8	CH			T	106.5	20.2	3	101.0	21.0	-.8	105.4	
1479	6-14-83	14+70	113D	594.00	8	CH			T	102.5	19.9	3	97.8	21.9	-2.0	104.8	
1480	6-14-83	17+40	230D	590.00	8	CH	67	51	T	105.8	21.5	3	101.8	21.5	0.0	103.9	
1480	6-14-83	17+40	230D	590.00	8	CH	67	51	T	105.8	21.5	5	101.5	20.5	1.0	104.2	
1481	6-15-83	13+14	159D	593.00	8	CL			T	110.9	14.7	3	108.9	17.4	-2.7	101.8	U-R,SEE 1481A
1482	6-15-83	15+ 6	190D	589.00	8	CL			T	115.1	15.2	3	108.1	15.4	-.2	106.5	
1483	6-15-83	18+ 9	195D	592.00	8	CL			T	117.0	14.9	3	108.5	15.9	-1.0	107.8	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-251	6-16-83	16+ 0	180D	590.00	8	CL	44	32	T	112.2	14.7	5	111.2	15.1	-.4	100.9	R-S
RS-251	6-16-83	16+ 0	180D	590.00	8	CL	44	32	T	112.2	14.7	3	112.5	15.4	-.7	99.7	R-S
1481A	6-16-83	13+14	159D	593.00	8	CL			T	108.7	17.6	3	105.6	19.3	-1.7	102.9	RET. 1481A
1484	6-16-83	15+70	228D	590.00	8	CH			T	96.5	27.2	3	96.0	25.1	2.1	100.5	U-R,SEE1484A
1485	6-16-83	14+76	104D	595.00	8	CH			T	107.6	19.5	3	104.4	20.3	-.8	103.1	
1486	6-16-83	13+51	80D	596.00	8	CL			T	110.9	16.0	3	109.3	15.9	.1	101.5	H.C.
1487	6-16-83	13+ 2	216D	591.00	8	CH			T	100.3	24.1	3	98.7	23.0	1.1	101.6	U,NO ACT.
1488	6-16-83	11+15	190U	602.00	8	CL			T	111.5	16.8	3	110.8	15.8	1.0	100.6	
1484A	6-17-83	15+70	228D	590.00	8	CL			T	107.1	16.7	3	109.9	16.9	-.2	97.5	RET. 1484
1489	6-17-83	14+91	91U	603.00	8	CL			T	110.4	18.0	3	104.4	19.9	-1.9	105.7	
1490	6-17-83	12+80	125D	596.00	8	CL	44	31	T	114.3	14.1	3	110.2	15.4	-1.3	103.7	
1491	6-17-83	16+39	147D	596.00	8	CL			T	105.9	15.2	3	110.5	15.0	.2	95.8	
1492	6-17-83	14+67	185U	604.00	8	CL			T	115.1	12.0	3	116.7	13.4	-1.4	98.6	
1493	6-18-83	11+33	113D	594.00	8	CL			T	117.3	15.9	3	112.2	15.9	0.0	104.5	
1494	6-18-83	16+75	150D	594.00	8	CL			T	112.5	17.8	3	108.2	18.1	-.3	104.0	
1495	6-18-83	13+67	55D	598.00	8	CL			T	116.0	15.3	3	112.8	16.0	-.7	102.8	
1496	6-18-83	10+37	99D	590.00	8	CL			T	113.7	13.6	3	109.1	16.9	-3.3	104.2	U-R,SEE 1496A
RS-126	6-21-83	12+ 0	285D	580.00	8	CL	29	16	T	120.5	12.3	3	116.7	13.4	-1.1	103.3	R-S
RS-128	6-21-83	12+ 0	285D	580.00	8	CL	29	16	T	120.5	12.3	5	115.6	13.6	-1.3	104.2	R-S
1496A	6-21-83	10+37	99D	590.00	8	CL			T	110.8	15.9	3	110.8	15.9	0.0	100.0	RET. 1496

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TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1498	6-21-83	14+37	174D	596.00	8	CL			T	107.6	19.5	3	106.0	18.6	.9	101.5	
1499	6-21-83	15+75	46U	601.00	8	CL			T	117.0	12.8	3	116.1	13.5	-.7	100.8	
1500	6-21-83	12+24	12U	599.00	8	CL			T	116.8	15.3	3	114.2	14.9	.4	102.3	
RS-129	6-22-83	12+ 0	80U	600.00	8	CL	33	20	T	115.8	12.7	3	112.4	14.3	-1.6	103.0	R-S
RS-129	6-22-83	12+ 0	80U	600.00	8	CL	33	20	T	115.8	12.7	5	111.6	15.0	-2.3	103.8	R-S
1502	6-22-83	9+78	55D	590.00	8	CL			T	110.5	14.7	3	115.7	14.1	.6	95.5	
1503	6-22-83	18+10	95D	600.00	8	CL			T	114.1	16.4	3	110.6	16.7	-.3	103.2	
1504	6-22-83	12+75	135U	602.00	8	CL			T	120.6	12.2	3	116.6	13.5	-1.3	103.4	
1505	6-22-83	12+72	195D	596.00	8	CL			T	115.6	13.6	3	113.8	14.6	-1.0	101.6	
RS-73	6-23-83	10+ 0	100D	590.00	8	CL	38	27	T	115.6	14.3	3	112.7	14.3	0.0	102.6	R-S
RS-73	6-23-83	10+ 0	100D	590.00	8	CL	38	27	T	115.6	14.3	5	113.6	15.4	-1.1	101.8	R-S
1507	6-23-83	9+78	60D	594.00	8	CL			T	118.5	14.7	3	111.6	15.2	-.6	106.2	
1508	6-23-83	16+21	141D	597.00	8	CL			T	105.8	18.0	3	107.1	17.8	.2	98.8	
1509	6-23-83	17+58	205D	598.00	8	CL	43	31	T	102.3	16.1	3	112.3	16.2	-.1	91.1	U-R,SEE 1509A
1510	6-23-83	16+45	110U	602.00	8	CL			T	117.2	13.8	3	120.2	13.1	.7	97.5	
RS-100	6-24-83	11+ 0	160D	590.00	8	CL	43	29	T	112.8	13.6	3	113.5	15.7	-2.1	99.4	R-S,U,NO ACT.
RS-100	6-24-83	11+ 0	160D	590.00	8	CL	43	29	T	112.8	13.6	5	112.0	15.4	-1.8	100.7	R-S
RS-216	6-24-83	15+ 0	20U	600.00	8	CL	36	23	T	110.6	17.4	5	109.5	16.2	1.2	101.0	R-S,U,NO ACT.
RS-216	6-24-83	15+ 0	20U	600.00	8	CL	36	23	T	110.6	17.4	3	112.0	16.0	1.4	98.7	R-S,U,NO ACT.
1511	6-24-83	12+30	170U	604.00	8	CL			T	116.4	13.8	3	115.3	14.2	-.4	101.0	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
1512	6-24-83	11+18	70U	601.00	8	CH			T	102.6	18.9	3	101.2	21.1	-2.2	101.4	U,NO ACT.
1514	6-24-83	16+80	28U	602.00	8	CL			T	114.4	16.4	3	108.5	17.1	-.7	105.4	H.C.
1515	6-24-83	16+ 0	38D	600.00	8	CL			T	110.5	15.5	3	110.6	16.2	-.7	99.9	
1516	6-24-83	11+75	197D	596.00	8	CL			T	122.2	11.9	3	114.2	14.5	-2.6	107.0	U-R,SEE 1516A
1517	6-24-83	17+25	100U	606.00	8	CL			T	115.4	14.8	3	117.0	13.9	.9	98.6	
RS-217	6-25-83	15+ 0	40D	600.00	8	CL	44	32	T	115.0	16.2	5	110.8	16.3	-.1	103.8	R-S
RS-217	6-25-83	15+ 0	40D	600.00	8	CL	44	32	T	115.0	16.2	3	110.4	16.5	-.3	104.2	R-S
1516A	6-25-83	11+75	197D	596.00	8	CL			T	116.1	14.0	3	112.3	15.2	-1.2	103.4	RET. 1516
1519	6-25-83	13+55	95U	602.00	8	CL			T	106.9	15.3	3	109.5	16.5	-1.2	97.6	
1520	6-25-83	12+72	87D	602.00	8	CL	39	25	T	113.0	15.8	5	109.6	16.8	-1.0	103.1	
1520	6-25-83	12+72	87D	602.00	8	CL	39	25	T	113.0	15.8	3	110.1	16.1	-.3	102.6	
1521	6-25-83	13+49	24U	604.00	8	CL			T	109.5	17.5	3	113.3	15.3	2.2	96.6	U-R,MAT. REM.
1522	6-26-83	15+96	104D	601.00	8	CL			T	101.5	18.3	3	107.5	17.9	.4	94.4	U-R,REW.&RER.
1523	6-26-83	11+72	140U	606.00	8	CL			T	114.0	16.7	3	108.8	17.6	-.9	104.8	
1524	6-26-83	14+40	160D	595.00	8	CL			T	110.1	18.4	3	110.1	16.4	2.0	100.0	U-R,SEE 1524A
1509A	6-29-83	17+58	205D	598.00	8	CL			T	111.6	17.2	3	108.4	18.4	-1.2	103.0	RET. 1509
1524A	6-29-83	14+40	160D	595.00	8	CL			T	113.3	14.9	3	112.4	15.3	-.4	102.6	RET. 1524
1525	6-29-83	13+62	190D	598.00	8	CH			T	107.0	20.7	3	102.4	21.4	-.7	104.5	
1526	6-29-83	13+50	25U	604.00	8	CL			T	111.9	16.6	3	108.7	17.8	-1.2	102.9	H.C.
1527	6-29-83	13+95	91D	599.00	8	CL			T	110.7	18.2	3	108.3	17.0	1.2	102.2	U, NO ACT.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1528	6-30-83	11+63	175D	597.00	8	CL			T	112.9	17.9	3	106.1	18.2	-.3	106.4	
1529	6-30-83	12+66	68D	602.00	8	CL			T	110.5	18.1	3	106.7	18.6	-.5	103.6	
1530	6-30-83	16+32	95D	602.00	8	CL	43	30	T	112.8	16.6	3	113.8	15.6	1.0	99.1	H.Z.
RS-131	7- 1-83	12+ 0	100D	600.00	8	CL	46	33	T	112.4	14.3	3	111.7	16.0	-1.7	100.6	R-S
RS-131	7- 1-83	12+ 0	100D	600.00	8	CL	46	33	T	112.4	14.3	5	113.0	17.4	-3.1	99.5	R-S
1531	7- 1-83	9+85	110U	604.00	8	CH			T	107.9	19.6	3	104.5	19.4	.2	103.3	
1533	7- 1-83	16+25	80D	602.00	8	CH			T	95.7	27.3	3	93.6	26.3	1.0	102.2	H.Z.
1534	7- 1-83	16+95	168D	600.00	8	CL			T	116.0	14.7	3	112.5	15.4	-.7	103.1	
1535	7- 2-83	13+20	100U	606.00	8	CL			T	115.0	15.3	3	114.6	14.8	.5	100.3	
1536	7- 2-83	15+50	215D	600.00	8	CH			T	99.7	19.4	3	102.5	21.3	-1.9	97.3	
1537	7- 2-83	13+ 4	56D	604.00	8	CL			T	112.3	18.4	3	108.4	17.8	.6	103.6	
1538	7- 2-83	15+39	128D	603.00	8	CL			T	114.9	13.4	3	110.9	16.6	-3.2	103.6	U-R,SEE 1538A
1538A	7- 5-83	15+39	128D	603.00	8	CL			T	117.5	14.0	3	110.8	15.8	-1.8	106.0	RET. 1538
1539	7- 5-83	17+50	100U	607.00	8	CL			T	116.9	14.8	3	113.8	15.0	-.2	102.7	
1540	7- 5-83	13+50	179D	601.00	8	CL	46	32	T	107.0	17.7	5	108.5	17.7	0.0	98.6	H.C.
1540	7- 5-83	13+50	179D	601.00	8	CL	46	32	T	107.0	17.7	3	108.0	17.9	-.2	99.1	H.C.
1541	7- 5-83	11+35	80U	604.00	8	CL			T	115.2	15.8	3	111.7	16.2	-.4	103.1	
1542	7- 5-83	18+ 8	30D	605.00	8	CL			T	115.4	14.5	3	110.7	16.2	-1.7	104.2	
1543	7- 5-83	12+80	30D	604.00	8	CH			T	104.5	21.0	3	102.7	20.2	.8	101.8	
1544	7- 6-83	10+75	22U	603.00	8	CH			T	97.9	22.0	3	99.8	22.3	-.3	98.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1545	7- 6-83	13+92	156D	605.00	8	CL	31	18	T	114.3	16.2	3	115.7	15.0	1.2	98.8	U,NO ACT.
1545	7- 6-83	13+92	156D	605.00	8	CL	31	18	T	114.3	16.2	5	114.7	14.1	2.1	99.7	
1546	7- 6-83	15+57	100D	610.00	8	CL			T	110.0	17.5	3	108.5	17.4	.1	101.4	
1547	7- 6-83	12+75	28U	607.00	8	CL			T	108.3	17.5	3	106.9	17.8	-.3	101.3	
1548	7- 6-83	16+75	100D	604.00	8	CL			T	104.7	15.9	3	108.4	17.2	-1.3	96.6	
1549	7- 6-83	11+40	120D	601.00	8	CL			T	111.0	14.1	3	110.5	16.0	-1.9	100.5	
1550	7- 6-83	13+11	109U	609.00	8	CL			T	111.6	17.6	3	111.7	16.9	.7	99.9	
RS-269	7- 7-83	18+15	250D	591.50	8	CL	48	34	T	103.3	16.5	3	108.1	17.3	-.8	95.6	R-S
RS-269	7- 7-83	18+15	250D	591.50	8	CL	48	34	T	103.3	16.5	5	109.8	17.4	-.9	94.1	R-S
1551	7- 7-83	13+29	143D	604.00	8	CH	63	47	T	106.4	20.5	3	102.2	20.9	-.4	104.1	
1552	7- 7-83	9+88	123D	593.00	8	CL			T	113.3	15.5	3	110.5	16.5	-1.0	102.5	
1553	7- 7-83	15+84	25U	608.00	8	CL			T	114.0	17.3	3	108.7	17.6	-.3	104.9	
1554	7- 7-83	13+49	80D	605.00	8	CH			T	101.7	20.4	3	101.6	21.4	-1.0	100.1	H.C.
1555	7- 7-83	12+75	50D	607.00	8	CL			T	106.0	18.2	3	100.4	19.9	-1.7	105.6	
1556	7- 7-83	16+83	201D	601.00	8	CL			T	111.3	18.1	3	108.8	17.2	.9	102.3	
1557	7- 7-83	17+93	122U	609.00	8	CL			T	114.1	16.4	3	113.2	15.9	.5	100.8	
1559	7- 8-83	10+75	64U	604.00	8	CL			T	112.5	15.9	3	108.1	17.7	-1.8	104.1	
1560	7- 8-83	10+22	69D	599.00	8	CH	65	49	T	104.5	19.8	5	101.6	20.4	-.6	102.9	
1560	7- 8-83	10+22	69D	599.00	8	CH	65	49	T	104.5	19.8	3	101.9	21.1	-1.3	102.6	
1562	7- 8-83	16+25	131D	605.00	8	CH			T	101.1	22.5	3	97.6	22.5	0.0	103.6	

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1563	7- 8-83	12+64	73U	607.00	8	CL			T	104.6	15.9	3	107.0	17.9	-2.0	97.8	
1564	7- 8-83	18+41	36D	606.00	8	CL			T	116.6	14.9	3	108.4	17.4	-2.5	107.6	U-R,SEE 1564A
RS-185	7- 9-83	14+ 0	120U	610.00	8	CH	56	42	T	107.8	17.5	3	107.4	18.2	-.7	100.4	R-S
RS-185	7- 9-83	14+ 0	120U	610.00	8	CH	56	42	T	107.8	17.5	5	107.1	18.1	-.6	100.7	R-S
1564A	7- 9-83	18+41	36D	606.00	8	CL			T	114.7	15.4	3	110.1	17.0	-1.6	104.2	RET. 1564
1565	7- 9-83	14+19	95D	603.00	8	CL			T	107.3	18.9	3	105.7	19.3	-.4	101.5	
1566	7- 9-83	9+96	69D	599.00	8	CH			T	108.3	20.7	3	103.4	19.4	1.3	104.7	U,NO ACT.
1567	7- 9-83	11+69	109U	608.00	8	CH			T	111.3	18.1	3	104.5	19.9	-1.8	106.5	
1568	7- 9-83	15+31	18D	606.00	8	CL			T	109.1	15.4	3	108.1	17.0	-1.6	100.9	
1570	7-10-83	11+80	60U	605.00	8	CH	61	45	T	102.5	22.6	3	102.6	21.7	.9	99.9	
1571	7-10-83	17+98	125D	606.00	8	CL			T	107.0	16.9	3	104.9	19.5	-2.6	102.0	U-R,SEE 1571A
1572	7-10-83	14+82	47D	607.00	8	CL			T	107.1	18.0	3	106.4	18.2	-.2	100.7	
RS-186	7-11-83	14+ 0	20U	610.00	8	CH	67	48	T	100.3	20.9	5	99.2	22.5	-1.6	101.1	R-S
RS-186	7-11-83	14+ 0	20U	610.00	8	CH	67	48	T	100.3	20.9	3	101.1	21.5	-.6	99.2	R-S
RS-187	7-11-83	14+ 0	30D	610.00	8	CH	66	49	T	100.5	18.0	5	102.4	20.0	-2.0	98.1	R-S
RS-187	7-11-83	14+ 0	30D	610.00	8	CH	66	49	T	100.5	18.0	3	104.1	19.0	-1.0	96.5	R-S
1573	7-11-83	18+30	5D	610.00	8	CH			T	99.0	20.4	3	100.9	21.0	-.6	98.1	
1575	7-11-83	11+39	138U	612.00	8	CH			T	102.5	17.9	3	102.2	21.0	-3.1	100.3	U-R,SEE 1575A
1576	7-11-83	16+95	55U	610.00	8	CH			T	105.1	19.6	3	98.6	21.8	-2.2	106.6	U, NO ACT.
1577	7-11-83	15+61	109D	609.00	8	CL			T	107.5	18.8	3	105.7	18.9	-.1	101.7	

PROJECT-			RIVER-		STATE-				TOWN-			CONTRACT NO.-				CONTRACTOR-			DATE-
							CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION			
								ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS		
RS-266	7-12-83	16+60	75U	610.20	8	CH	60	42	T	109.9	18.0	5	102.3	19.5	-1.5	107.4	R-S		
RS-266	7-12-83	16+60	75U	610.20	8	CH	60	42	T	109.9	18.0	3	103.9	20.3	-2.3	105.8	R-S,U NO ACT.		
1578	7-12-83	18+40	85U	611.00	8	CH			T	101.3	19.6	3	100.3	21.7	-2.1	101.0	U,NO ACT.		
1579	7-12-83	16+60	51U	612.00	8	CH			T	99.2	18.9	3	103.4	20.5	-1.6	95.9			
1581	7-12-83	9+74	51U	605.00	8	CL			T	103.3	20.3	3	106.1	17.2	3.1	97.4	U-R,SEE 1581A		
RS-133	7-13-83	12+ 0	40D	610.00	8	CH	71	53	T	100.8	23.2	5	97.8	22.5	.7	103.1	R-S		
RS-133	7-13-83	12+ 0	40D	610.00	8	CH	71	53	T	100.8	23.2	3	96.9	24.4	-1.2	104.0	R-S		
RS-158	7-13-83	12+79	75U	610.00	8	CH	56	40	T	103.2	18.0	3	104.6	19.1	-1.1	98.7	R-S		
RS-158	7-13-83	12+79	75U	610.00	8	CH	56	40	T	103.2	18.0	5	104.8	19.0	-1.0	98.5	R-S		
1581A	7-13-83	9+74	51U	605.00	8	CL			T	101.1	18.9	3	103.9	19.6	-.7	97.3	RET 1581		
1582	7-13-83	18+23	8D	610.00	8	CL			T	103.7	17.6	3	105.6	19.1	-1.5	98.2			
1583	7-13-83	19+40	5U	613.00	8	CL			T	109.5	16.8	3	105.8	18.2	-1.4	103.5			
1584	7-13-83	15+69	115D	609.00	8	CL			T	117.3	15.3	3	109.9	17.0	-1.7	106.7			
RS-188	7-14-83	14+ 0	120D	610.00	8	CH	53	37	T	112.2	17.6	5	110.3	16.9	.7	101.7	R-S		
RS-188	7-14-83	14+ 0	120D	610.00	8	CH	53	37	T	112.2	17.6	3	110.3	17.0	.6	101.7	R-S		
RS-267	7-14-83	16+64	80D	609.00	8	CH	54	40	T	106.6	14.6	5	106.6	17.9	-3.3	100.0	R-S,U,NO ACT.		
RS-267	7-14-83	16+64	80D	609.00	8	CH	54	40	T	106.6	14.6	3	106.7	17.8	-3.2	99.9	R-S,U,NO ACT.		
1571A	7-14-83	17+98	125D	606.00	8	CL			T	105.3	18.7	3	105.2	19.7	-1.0	100.1	RET. 1571		
1575A	7-14-83	11+39	138U	612.00	8	CH			T	105.9	19.5	3	101.7	21.3	-1.8	104.1	RET. 1575		
1585	7-14-83	12+79	33U	613.00	8	CL			T	104.4	17.1	3	104.4	18.9	-1.8	100.0			

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1586	7-14-83	14+55	43U	610.00	8	CH			T	88.9	33.7	3	88.6	29.9	3.8	100.3	U-R,SEE 1586A
1587	7-14-83	16+64	90D	612.00	8	CL			T	99.7	17.0	3	105.1	19.8	-2.8	94.9	U-R,SEE1587A
RS-103	7-15-83	11+ 0	80U	610.00	8	CH	54	38	T	110.8	17.1	5	107.7	17.5	-.4	102.9	R-S
RS-103	7-15-83	11+ 0	80U	610.00	8	CH	54	38	T	110.8	17.1	3	106.9	18.3	-1.2	103.6	R-S
RS-162	7-15-83	12+78	30D	610.00	8	CH	74	54	T	104.4	20.8	5	98.3	21.3	-.5	106.2	R-S
RS-162	7-15-83	12+78	30D	610.00	8	CH	74	54	T	104.4	20.8	3	97.3	23.8	-3.0	107.3	R-S
1586A	7-16-83	14+55	43U	610.00	8	CH			T	104.6	20.6	3	104.9	19.6	1.0	99.7	RET 1586
1587A	7-16-83	16+64	90D	612.00	8	CL			T	108.9	18.9	3	107.8	18.6	.3	101.0	RET. 1587
1588	7-16-83	10+18	72D	602.00	8	CL			T	100.6	19.2	3	104.2	19.8	-.6	96.5	
1589	7-16-83	13+74	140U	613.00	8	CH			T	102.4	20.5	3	104.0	20.3	.2	98.5	
1590	7-16-83	17+92	34U	613.00	8	CH	51	37	T	112.8	16.7	3	107.9	17.9	-1.2	104.5	
RS-253	7-17-83	16+ 0	10U	610.00	8	CH	65	46	T	106.9	19.4	3	100.6	21.9	-2.5	106.3	R-S
RS-253	7-17-83	16+ 0	10U	610.00	8	CH	65	46	T	106.9	19.4	5	99.8	21.8	-2.4	107.1	R-S
1591	7-17-83	13+44	15D	613.00	8	CL			T	107.2	17.2	3	109.5	17.4	-.2	97.9	
1592	7-17-83	11+95	130U	614.00	8	CL			T	104.3	17.6	3	105.0	19.5	-1.9	99.3	
1594	7-17-83	12+79	286D	587.00	8	CH			T	99.3	22.2	3	99.8	22.3	-.1	99.5	
1595	7-17-83	16+95	49U	616.00	8	CL			T	114.6	16.0	3	110.4	17.3	-1.3	103.8	
1596	7-18-83	18+23	95D	610.00	8	CL			T	107.8	18.6	3	104.8	19.8	-1.2	102.9	
1597	7-18-83	11+48	106U	614.00	8	CH			T	100.9	21.8	3	99.5	22.6	-.8	101.4	
1598	7-18-83	15+51	15U	614.00	8	CL			T	111.7	16.2	3	110.5	16.7	-.5	101.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION		
							ATTERBERG LIMITS											
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1599	7-18-83	12+ 3	18D	611.00	8	CH			T	103.9	17.0	3	103.4	20.1	-3.1	100.5	U-R,SEE 1599A
1600	7-18-83	15+76	132D	611.00	8	CH	61	44	T	104.2	17.9	3	103.2	20.2	-2.3	101.0	U-R,SEE 1600A
1600	7-18-83	15+76	132D	611.00	8	CH	61	44	T	104.2	17.9	5	102.8	20.7	-2.8	101.4	U-R,SEE 1600A
1601	7-18-83	13+60	95U	611.00	8	CH			T	103.6	20.6	3	101.2	21.8	-1.2	102.4	
1603	7-18-83	10+28	36U	610.00	8	CL			T	108.5	16.0	3	106.8	17.8	-1.8	101.6	
1599A	7-19-83	12+ 3	18D	611.00	8	CH			T	95.2	20.1	3	99.7	21.1	-1.0	95.5	RET. 1599
1604	7-19-83	17+25	69D	613.00	8	CH			T	100.0	21.4	3	99.8	22.7	-1.3	100.2	
1605	7-19-83	15+30	76U	616.00	8	CH			T	102.6	17.4	3	103.2	20.1	-2.7	99.4	U-R,SEE1605A
1606	7-19-83	16+50	26U	615.00	8	CH			T	105.9	18.1	3	102.2	20.6	-2.5	103.6	U-R,SEE 1606A
1607	7-19-83	12+84	22U	617.00	8	CH			T	106.4	18.4	3	101.7	21.0	-2.6	104.6	U-R,SEE 1607A
1608	7-19-83	17+75	11D	615.00	8	CH			T	104.4	22.0	3	98.7	22.7	-.7	105.8	
1609	7-19-83	14+10	95D	613.00	8	CH			T	101.5	19.6	3	103.0	20.3	-.7	98.5	
1610	7-19-83	17+61	28U	613.00	8	CH	61	44	T	102.5	18.0	3	103.3	19.3	-1.3	99.2	
1600A	7-20-83	15+76	132D	611.00	8	CL			T	108.5	18.6	3	103.4	20.5	-1.9	104.9	RET. 1600
1605A	7-20-83	15+30	76U	616.00	8	CL			T	103.6	17.8	3	104.8	19.1	-1.3	98.9	RET. 1605
1606A	7-20-83	16+50	26U	615.00	8	CL			T	105.8	19.8	3	104.5	19.6	.2	101.2	RET. 1606
1607A	7-20-83	12+84	22U	617.00	8	CH			T	105.1	20.7	3	101.7	21.8	-1.1	103.3	RET. 1607
1612	7-20-83	9+98	78D	603.00	8	CH			T	104.5	19.1	3	104.3	20.1	-1.0	100.2	
1613	7-20-83	18+58	10D	614.00	8	CL			T	108.9	16.3	3	106.6	17.9	-1.6	102.2	
1615	7-21-83	12+15	77D	614.00	8	CH			T	104.1	22.2	3	102.6	21.3	.9	101.5	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1616	7-21-83	14+43	106U	619.00	8	CH			T	109.6	19.3	3	105.3	19.7	-.4	104.1	
1617	7-21-83	11+36	27U	614.00	8	CH			T	96.5	18.8	3	102.1	20.6	-1.8	94.5	U,NO ACT. HC
1618	7-21-83	15+21	47D	615.00	8	CH			T	107.8	19.9	3	104.0	20.2	-.3	103.7	
1619	7-21-83	18+10	148D	610.00	8	CH			T	104.2	21.2	3	102.8	20.7	.5	101.4	
RS-104	7-22-83	11+ 0	30D	610.00	8	CH	57	40	T	108.7	19.7	5	103.0	20.2	-.5	105.5	R-S
RS-104	7-22-83	11+ 0	30D	610.00	8	CH	57	40	T	108.7	19.7	3	103.6	18.9	.8	104.9	R-S
RS-75	7-22-83	10+ 0	20U	610.00	8	CH	54	39	T	112.4	15.9	5	107.1	17.8	-1.9	104.9	R-S
RS-75	7-22-83	10+ 0	20U	610.00	8	CH	54	39	T	112.4	15.9	3	107.7	17.4	-1.5	104.4	R-S
1620	7-22-83	16+71	61U	617.00	8	CH	58	42	T	109.3	19.3	5	103.4	20.2	-.9	105.7	
1620	7-22-83	16+71	61U	617.00	8	CH	58	42	T	109.3	19.3	3	103.2	20.1	-.8	105.9	
1621	7-22-83	14+25	71D	616.00	8	CH			T	103.1	20.1	3	102.3	20.6	-.5	100.8	
1622	7-22-83	11+90	115U	617.00	8	CL			T	106.6	15.9	3	104.5	18.1	-2.2	102.0	U, NO ACT.
1623	7-22-83	19+28	7D	613.00	8	CL			T	111.0	17.8	3	105.6	19.3	-1.5	105.1	
1624	7-22-83	14+91	28D	617.00	8	CH			T	102.9	21.5	3	100.3	22.2	-.7	102.6	
1626	7-22-83	18+ 8	30U	616.00	8	CH			T	106.0	19.7	3	104.3	19.3	.4	101.6	
1627	7-23-83	19+76	4D	617.00	8	CH			T	99.1	25.1	3	98.1	23.0	2.1	101.0	U-R,REV.
1628	7-23-83	12+96	24U	620.00	8	CH			T	99.7	24.3	3	96.7	24.5	-.2	103.1	
1629	7-23-83	14+70	86D	617.00	8	CH			T	96.1	20.6	3	97.3	23.1	-2.5	98.8	U-R,SEE 1629A
1630	7-23-83	16+60	79U	620.00	8	CH	75	53	T	105.1	21.0	3	98.6	22.9	-1.9	106.6	
1631	7-23-83	17+20	125U	618.00	8	CL			T	108.4	17.7	3	109.4	17.1	.6	99.1	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	CLASSIFICATION: ATTERBERG LIMITS: LL	CLASSIFICATION: ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1632	7-23-83	10+80	135D	606.00	8	CH			T	106.3	19.8	3	103.2	20.2	-.4	103.0	
1634	7-24-83	10+16	84U	613.00	8	CH			T	98.5	23.4	3	99.7	22.1	1.3	98.8	U-R,SEE 1634A
RS-74	7-25-83	10+ 0	120U	610.00	8	CH	57	40	T	112.5	17.7	3	105.5	18.7	-1.0	106.6	R-S
RS-74	7-25-83	10+ 0	120U	610.00	8	CH	57	40	T	112.5	17.7	5	105.4	18.6	-.9	106.7	R-S
1629A	7-26-83	17+70	86D	617.00	8	CH			T	108.6	18.1	3	104.1	19.8	-1.7	104.3	RET. 1629
1634A	7-26-83	10+16	84U	613.00	8	CL			T	104.5	18.3	3	107.2	18.0	.3	97.5	RET. 1634
1635	7-27-83	18+ 2	2D	617.00	8	CL			T	108.1	19.3	3	107.3	18.9	.4	100.7	
1636	7-27-83	15+29	120D	615.00	8	CL			T	109.3	16.3	3	108.2	17.8	-1.5	101.0	
1637	7-27-83	14+54	100U	619.00	8	CH			T	109.8	18.8	3	103.8	19.7	-.9	105.8	
1638	7-27-83	17+19	49U	619.00	8	CL			T	112.6	16.7	3	110.3	16.5	.2	102.1	
1639	7-27-83	18+70	115D	615.00	8	CL			T	101.8	15.5	3	108.6	17.8	-2.3	93.7	U-R, SEE 1639A
1640	7-27-83	12+ 6	79U	619.00	8	CL	48	32	T	109.0	18.7	5	107.2	17.7	1.0	101.7	
1640	7-27-83	12+ 6	79U	619.00	8	CL	48	32	T	109.0	18.7	3	107.9	18.3	.4	101.0	
1642	7-28-83	14+64	87U	621.00	8	CL			T	115.2	15.4	3	109.6	16.0	-.6	105.1	
1643	7-28-83	12+46	16U	617.00	8	CL			T	110.0	18.6	3	107.1	17.0	1.6	102.7	U-R,SEE 1643A
1644	7-28-83	14+ 4	65D	620.00	8	CL			T	110.7	16.7	3	105.4	19.1	-2.4	105.0	U-R,SEE 1644A
RS-134	7-29-83	12+ 0	100U	620.00	8	CL	47	33	T	115.9	15.7	5	108.7	16.5	-.8	106.6	R-S
RS-134	7-29-83	12+ 0	100U	620.00	8	CL	47	33	T	115.9	15.7	3	111.5	15.8	-.1	103.9	R-S
RS-159	7-29-83	12+75	20D	620.00	8	CH	53	38	T	110.9	17.9	5	105.7	18.8	-.9	104.9	R-S
RS-159	7-29-83	12+75	20D	620.00	8	CH	53	38	T	110.9	17.9	3	105.6	18.8	-.9	105.0	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1639A	7-29-83	18+70	115D	615.00	8	CL			T	112.4	16.8	3	110.0	16.9	-.1	102.2	RET. 1639
1643A	7-29-83	12+46	16U	617.00	8	CL			T	110.9	18.3	3	104.5	19.1	-.8	106.1	RET. 1643
1644A	7-29-83	14+ 4	65D	620.00	8	CL			T	108.3	17.8	3	104.5	18.7	-.9	103.6	RET. 1644
1645	7-29-83	12+80	90D	617.00	8	CL			T	111.1	18.2	3	106.2	18.3	-.1	104.6	
1646	7-29-83	10+75	50U	618.00	8	CL			T	113.5	16.9	3	105.5	18.6	-1.7	107.6	
1647	7-29-83	17+35	20U	621.00	8	CL			T	112.8	16.8	3	108.2	17.7	-.9	104.3	
1648	7-29-83	16+ 0	50D	620.00	8	CL			T	105.2	18.4	3	107.5	18.5	-.1	97.9	
1649	8- 1-83	16+ 2	94U	623.00	8	CL			T	106.5	15.9	3	107.6	18.8	-2.9	99.0	U-R,SEE1649A
1650	8- 1-83	19+40	5D	617.00	8	CL	44	30	T	113.1	15.8	3	110.5	16.7	-.9	102.4	
1651	8- 1-83	12+75	56D	620.00	8	CL			T	111.2	15.4	3	112.1	16.6	-1.2	99.2	
1652	8- 1-83	10+22	100D	611.00	8	CL			T	112.0	16.3	3	109.1	17.1	-.8	102.7	
1653	8- 1-83	20+ 0	6D	618.00	8	CL			T	105.2	18.3	3	106.6	18.7	-.4	98.7	
RS-220	8- 2-83	15+ 0	70D	620.00	8	CH	58	42	T	99.9	19.9	5	103.7	18.7	1.2	96.3	R-S
RS-220	8- 2-83	15+ 0	70D	620.00	8	CH	58	42	T	99.9	19.9	3	105.1	19.7	.2	95.1	R-S
1649A	8- 2-83	16+ 2	94U	623.00	8	CL			T	109.7	16.9	3	108.2	17.7	-.8	101.4	RET. 1649
1654	8- 2-83	13+70	16U	623.00	8	CL			T	109.3	16.4	3	111.0	16.3	.1	98.5	
1655	8- 2-83	11+ 0	24U	618.00	8	CH			T	106.6	18.8	3	106.6	19.1	-.3	100.0	H.C.
1656	8- 2-83	11+57	89D	617.00	8	CL			T	114.0	16.7	3	110.5	17.1	-.4	103.2	
1657	8- 2-83	13+95	67U	625.00	8	CL			T	105.5	17.6	3	106.7	18.7	-1.1	98.9	
1659	8- 3-83	10+22	51D	614.00	8	CH			T	95.5	21.0	3	102.6	20.5	.5	93.1	U-R,REW.&RER.

PROJECT-			RIVER-			STATE-		TOWN-			CONTRACT NO.-				CONTRACTOR-			DATE-	
						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA				CORRELATION			
							ATTERBERG LIMITS												
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC		DIFF FROM OPT	PERC COMP	COMMENTS	
1660	8- 3-83	13+65	80U	625.00	8	CH	54	39	T	110.8	17.4	3	107.5	17.8		-.4	103.1		
1660	8- 3-83	13+65	80U	625.00	8	CH	54	39	T	110.8	17.4	5	106.4	18.0		-.6	104.1		
1662	8- 3-83	18+70	150D	617.00	8	CL			T	110.9	16.9	3	106.5	18.1		-1.2	104.1		
1663	8- 3-83	15+90	35D	624.00	8	CH			T	102.8	19.6	3	94.3	22.4		-2.8	109.0	U-R,SEE 1663A	
1664	8- 3-83	20+26	2D	624.00	8	CL			T	106.9	17.8	3	105.9	18.0		-.2	100.9		
1665	8- 3-83	11+75	79U	623.00	8	CL			T	117.0	15.6	3	108.5	17.2		-1.6	107.8		
RS-160	8- 4-83	12+75	80D	620.00	8	CH	52	38	T	112.9	17.4	5	108.2	17.3		.1	104.3	R-S	
RS-160	8- 4-83	12+75	80D	620.00	8	CH	52	38	T	112.9	17.4	3	108.5	16.8		.6	104.1	R-S	
1666	8- 4-83	10+43	43D	617.00	8	CH			T	103.1	20.5	3	102.8	19.4		1.1	100.3	U,NO ACT.	
1668	8- 4-83	17+52	5D	622.00	8	CH			T	108.1	17.8	3	106.2	19.1		-1.3	101.8		
1669	8- 4-83	17+15	50U	624.00	8	CL			T	102.0	20.5	3	102.0	19.8		.7	100.0		
1671	8- 5-83	17+20	40U	625.00	8	CL			T	108.2	17.6	3	109.4	17.2		.4	98.9		
1673	8- 5-83	10+12	6U	617.00	8	CL			T	111.1	18.1	3	104.6	18.6		-.5	106.2		
1674	8- 5-83	19+47	4D	623.00	8	CH			T	96.4	22.6	3	102.2	20.9		1.7	94.3	U-R,SEE 1674A	
1675	8- 5-83	9+88	51U	615.00	8	CL			T	113.9	16.0	3	110.0	16.5		-.5	103.5		
1663A	8- 8-83	15+90	35D	624.00	8	CL			T	105.8	16.9	3	108.5	17.5		-.6	97.5	RET.1663	
RS-106	8- 9-83	11+ 0	120U	620.00	8	CH	52	38	T	109.3	16.0	3	108.9	16.7		-.7	100.4	R-S	
RS-106	8- 9-83	11+ 0	120U	620.00	8	CH	52	38	T	109.3	16.0	5	109.7	17.1		-1.1	99.6	R-S	
1676	8- 9-83	11+90	88U	628.00	8	CL			T	110.3	15.7	3	107.1	18.1		-2.4	103.0	U-R,SEE 1676A	
1677	8- 9-83	9+88	45D	619.00	8	CH			T	107.5	20.2	3	105.0	19.5		.7	102.4		

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1678	8- 9-83	13+52	80D	625.00	8	CL			T	104.0	16.2	3	111.8	15.7	.5	93.0	U-R,SEE 1678A
1679	8- 9-83	15+81	51D	626.00	8	CL			T	111.4	16.5	3	107.7	18.1	-1.6	103.4	
1680	8- 9-83	15+40	65U	626.00	8	CL			T	110.3	15.5	3	109.8	16.8	-1.3	100.5	
1681	8- 9-83	9+85	51U	618.00	8	CL	47	34	T	109.0	16.6	3	110.9	16.5	.1	98.3	
1681	8- 9-83	9+85	51U	618.00	8	CL	47	34	T	109.0	16.6	5	108.4	17.8	-1.2	100.6	
1676A	8-10-83	11+90	88U	628.00	8	CL			T	106.4	17.4	3	107.3	18.3	-.9	99.2	RET. 1676
1682	8-10-83	11+33	77D	622.00	8	CH			T	103.6	20.7	3	101.3	20.3	.4	102.3	
1684	8-10-83	16+98	60U	628.00	8	CH			T	106.4	19.4	3	103.1	20.5	-1.1	103.2	
1685	8-10-83	14+37	28D	629.00	8	CL			T	114.4	16.8	3	110.6	16.7	.1	103.4	
1686	8-10-83	11+ 0	25U	625.00	8	CL			T	109.8	16.5	3	108.2	17.5	-1.0	101.5	H.C.
1688	8-10-83	10+85	26U	624.00	8	CL			T	107.1	14.0	3	110.8	16.2	-2.2	96.7	U,NO ACT.
1689	8-11-83	16+27	20D	627.00	8	CL			T	113.7	15.4	3	111.6	15.8	-.4	101.9	
1690	8-11-83	15+40	65U	628.00	8	CH	52	38	T	114.3	16.3	3	109.2	16.6	-.3	104.7	
1691	8-11-83	13+50	25U	630.00	8	CL			T	106.5	18.2	3	106.5	18.6	-.4	100.0	H.C.
1692	8-11-83	12+81	55D	629.00	8	CL			T	115.0	15.0	3	109.4	17.1	-2.1	105.1	U,NO ACT.
1693	8-11-83	15+69	50U	629.00	8	CL			T	115.4	16.3	3	106.8	17.9	-1.6	108.1	
1695	8-11-83	10+45	75D	624.00	8	CL			T	109.4	18.0	3	107.5	18.7	-.7	101.8	
RS-77	8-12-83	10+15	80D	621.00	8	CH	52	37	T	106.4	18.2	5	107.9	18.2	0.0	98.6	R-S
RS-77	8-12-83	10+15	80D	621.00	8	CH	52	37	T	106.4	18.2	3	108.2	18.1	.1	98.3	R-S
1696	8-12-83	15+50	83D	627.00	8	CL			T	111.9	17.4	3	110.5	16.9	.5	101.3	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1697	8-12-83	11+80	65U	628.00	8	CL			T	110.8	16.2	3	111.5	16.3	-.1	99.4	
1698	8-12-83	12+60	17D	630.00	8	CH			T	106.8	20.0	3	102.4	20.9	-.9	104.3	
1699	8-12-83	11+31	25U	627.00	8	CL			T	112.0	17.0	3	108.2	17.8	-.8	103.5	H.C.
1700	8-12-83	11+ 5	65U	628.00	8	CH	60	45	T	108.5	19.5	5	104.8	19.0	.5	103.5	
1700	8-12-83	11+ 5	65U	628.00	8	CH	60	45	T	108.5	19.5	3	105.7	18.3	1.2	102.6	U,NO ACT.
1701	8-12-83	18+21	10U	626.00	8	CL			T	111.1	18.2	3	107.8	18.2	0.0	103.1	
1674A	8-13-83	19+47	4D	623.00	8	CL			T	107.2	16.2	3	107.2	17.8	-1.6	100.0	RET.1674
1678A	8-13-83	13+52	80D	625.00	8	CL			T	114.8	16.3	3	110.2	16.3	0.0	104.2	RET. 1678
1702	8-13-83	17+ 5	15U	629.00	8	CL			T	115.4	15.8	3	111.7	16.1	-.3	103.3	
1703	8-13-83	15+43	56D	630.00	8	CL			T	111.1	16.3	3	109.3	17.8	-1.5	101.6	
1704	8-13-83	13+14	67U	633.00	8	CL			T	104.4	16.0	3	108.8	17.4	-1.4	96.0	
1705	8-13-83	9+95	83D	622.00	8	CL			T	114.2	16.0	3	111.1	16.6	-.6	102.8	
1706	8-13-83	12+30	41D	631.00	8	CL			T	116.1	15.1	3	110.2	16.7	-1.6	105.4	
1707	8-13-83	14+50	80U	633.00	8	CL			T	108.5	18.2	3	108.6	17.5	.7	99.9	
1708	8-13-83	18+30	40U	627.00	8	CL			T	107.9	16.8	3	107.5	17.5	-.7	100.4	
1709	8-13-83	19+85	1D	625.00	8	CL			T	111.0	18.0	3	107.2	18.1	-.1	103.5	
RS-135	8-14-83	12+ 0	20U	630.00	8	CH	51	37	T	103.4	16.4	5	108.0	17.9	-1.5	95.7	R-S
RS-135	8-14-83	12+ 0	20U	630.00	8	CH	51	37	T	103.4	16.4	3	108.8	17.5	-1.1	95.0	R-S
RS-190	8-14-83	14+ 0	50D	630.00	8	CL	49	35	T	105.5	16.8	3	108.7	17.5	-.7	97.1	R-S
RS-190	8-14-83	14+ 0	50D	630.00	8	CL	49	35	T	105.5	16.8	5	109.0	17.2	-.4	96.8	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
RS-256	8-14-83	16+ 0	45D	630.00	8	CL	48	32	T	114.9	16.4	3	109.5	17.4	-1.0	104.9	R-S
RS-256	8-14-83	16+ 0	45D	630.00	8	CL	48	32	T	114.9	16.4	5	108.1	16.9	-.5	106.3	R-S
RS-271	8-14-83	19+ 6	86D	622.00	8	CL	44	31	T	112.8	15.7	3	110.0	17.0	-1.3	102.5	R-S
RS-271	8-14-83	19+ 6	86D	622.00	8	CL	44	31	T	112.8	15.7	5	110.0	16.4	-.7	102.5	R-S
1710	8-14-83	17+10	8D	630.00	8	CH	54	39	T	110.3	18.7	3	107.2	18.6	.1	103.4	
1711	8-14-83	20+54	0C	626.00	8	CL			T	107.4	18.9	3	108.1	17.9	1.0	99.4	
1713	8-14-83	18+ 0	29D	630.00	8	CH			T	97.8	25.2	3	92.8	25.6	-.4	105.4	
1715	8-17-83	9+85	70U	626.00	8	CL			T	110.1	17.5	3	108.7	17.2	.3	101.3	
1717	8-17-83	12+50	64U	635.00	8	CL			T	105.0	16.4	3	109.3	17.8	-1.4	96.1	
1718	8-17-83	10+82	29D	631.00	8	CH			T	100.8	23.5	3	96.3	24.2	-.7	104.7	
1719	8-18-83	11+88	21D	633.00	8	CL			T	111.6	17.0	3	111.0	16.3	.7	100.5	
1720	8-18-83	14+91	49U	634.00	8	CL			T	112.9	16.7	3	108.1	17.6	-.9	104.4	
1722	8-18-83	12+20	28U	635.00	8	CH	66	51	T	96.4	21.1	5	99.0	21.5	-.4	97.4	
1722	8-18-83	12+20	28U	635.00	8	CH	66	51	T	96.4	21.1	3	100.5	20.8	.3	95.9	
1723	8-18-83	9+86	54U	634.00	8	CH			T	94.8	22.3	3	102.2	21.1	1.2	92.8	U-R,SEE 1723A
1724	8-19-83	16+80	25U	635.00	8	CL			T	110.8	16.5	3	109.4	17.5	-1.0	101.3	M.C.
1725	8-19-83	15+28	19U	635.00	8	CH			T	104.2	20.2	3	102.2	20.7	-.5	102.0	
1726	8-19-83	13+93	46D	634.00	8	CL			T	113.1	16.4	3	111.7	16.7	-.3	101.3	
1727	8-19-83	16+35	37U	637.00	8	CL			T	107.3	17.2	3	109.8	16.1	1.1	97.7	U,NO ACT.
1728	8-19-83	16+86	26D	635.00	8	CL			T	104.6	19.1	3	108.8	17.7	1.4	96.1	U,NO ACT.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
RS-108	8-20-83	11+ 0	40D	630.00	8	CL	48	35	T	113.6	16.2	5	108.4	17.4	-1.2	104.8	R-S
RS-108	8-20-83	11+ 0	40D	630.00	8	CL	48	35	T	113.6	16.2	3	110.6	17.0	-.8	102.7	R-S
1729	8-20-83	17+ 2	32D	637.00	8	CL			T	113.3	17.1	3	109.7	16.7	.4	103.3	
1730	8-20-83	12+63	34U	639.00	8	CH	50	32	T	113.9	17.1	3	108.6	16.9	.2	104.9	
1731	8-20-83	14+18	28D	639.00	8	CL			T	116.3	15.1	3	113.4	15.3	-.2	102.6	
1732	8-20-83	15+ 5	37U	639.00	8	CL			T	110.7	18.1	3	110.8	16.9	1.2	99.9	U,NO ACT.
1733	8-20-83	12+72	35D	638.00	8	CH			T	107.4	17.8	3	104.1	19.7	-1.9	103.2	
1734	8-20-83	19+68	10D	631.00	8	CL			T	112.0	15.0	3	114.3	14.8	.2	98.0	
1723A	8-21-83	9+86	54U	634.00	8	CH			T	98.1	23.1	3	100.8	22.2	.9	97.3	RET. 1723
1736	8-21-83	12+50	22U	640.00	8	CL			T	112.2	16.2	3	108.5	17.3	-1.1	103.4	
1737	8-21-83	11+66	33D	635.00	8	CL			T	114.2	15.7	3	110.7	16.1	-.4	103.2	
1738	8-21-83	19+38	17U	633.00	8	CL			T	110.2	17.8	3	109.6	16.9	.9	100.5	
1740	8-21-83	11+72	40D	638.00	8	CL	41	28	T	111.6	13.2	5	113.5	14.6	-1.4	98.3	
1740	8-21-83	11+72	40D	638.00	8	CL	41	28	T	111.6	13.2	3	114.3	14.1	-.9	97.6	
1741	8-21-83	20+10	12D	634.00	8	CH			T	107.0	19.6	3	104.3	19.8	-.2	102.6	
1743	8-22-83	19+80	5U	636.00	8	CL			T	108.1	19.3	3	107.7	18.2	1.1	100.4	U,NO ACT.
1744	8-22-83	13+80	31D	640.00	8	CL			T	120.2	14.6	3	116.2	14.3	.3	103.4	
1745	8-22-83	10+99	25U	637.00	8	CH			T	104.2	22.0	3	99.4	22.9	-.9	104.8	H.C.
1747	8-26-83	20+69	29D	640.00	8	CL			T	113.9	13.0	3	115.2	14.2	-1.2	98.9	
1748	8-27-83	16+50	26U	641.00	8	CL			T	108.6	13.1	3	112.7	15.2	-2.1	96.4	U,NO ACT HC

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION	ATTERBERG LIMITS		IN-PLACE DATA			LAB TEST DATA			CORRELATION		
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1749	8-28-83	20+70	15D	643.00	8	CL			T	118.5	13.3	3	115.1	14.6	-1.3	103.0	
1750	8-29-83	18+89	20D	638.00	8	CL	47	29	T	117.8	14.4	3	112.1	15.7	-1.3	105.1	
1751	8-29-83	17+25	40U	642.00	8	CL			T	114.8	14.5	3	113.7	15.9	-1.4	101.0	
RS-221	8-31-83	15+ 0	20U	640.00	8	CH	61	42	T	103.4	20.6	5	104.6	19.8	.8	98.9	R-S
RS-221	8-31-83	15+ 0	20U	640.00	8	CH	61	42	T	103.4	20.6	3	104.5	19.6	1.0	98.9	R-S
1752	9- 1-83	20+30	24D	644.00	8	CL			T	119.0	14.4	3	118.2	14.2	.2	100.7	
1753	9- 1-83	18+78	50D	639.00	8	CL			T	105.7	17.1	3	109.8	17.3	-.2	96.3	
1754	9- 2-83	10+71	36D	636.00	8	CL			T	110.6	14.8	3	113.8	15.8	-1.0	97.2	
1756	9- 6-83	11+77	40D	640.00	8	CL			T	111.9	15.7	3	116.5	15.2	.5	96.1	
1757	9- 7-83	17+ 0	0C	642.00	8	CL			T	112.7	15.8	3	114.5	14.6	1.2	98.4	U,NO ACT.
1758	9- 7-83	14+53	45D	643.00	8	CL			T	115.0	14.4	3	117.5	14.2	.2	97.9	
RS-270	9- 8-83	19+20	50U	641.00	8	CH	50	34	T	112.5	13.4	3	112.0	15.2	-1.8	100.4	R-S
1760	9- 8-83	16+75	25U	645.00	8	CL	35	22	T	117.5	12.7	3	116.8	13.2	-.5	100.6	H.C.
1760	9- 8-83	16+75	25U	645.00	8	CL	35	22	T	117.5	12.7	5	117.3	13.6	-.9	100.2	H.C.
1761	9- 8-83	14+35	30U	645.00	8	CL			T	118.6	12.8	3	115.7	14.1	-1.3	102.5	
1762	9- 8-83	17+60	5U	646.00	8	CL			T	119.1	13.1	3	117.7	13.8	-.7	101.2	
RS-109	9- 9-83	11+ 0	30U	640.00	8	CL	36	22	T	120.2	13.2	3	117.9	13.3	-.1	102.0	R-S
RS-109	9- 9-83	11+ 0	30U	640.00	8	CL	36	22	T	120.2	13.2	5	115.9	14.2	-1.0	103.7	R-S
RS-79	9- 9-83	10+ 0	5U	640.00	8	CL	34	21	T	120.9	13.8	5	116.2	14.1	-.3	104.0	R-S
RS-79	9- 9-83	10+ 0	5U	640.00	8	CL	34	21	T	120.9	13.8	3	115.5	14.2	-.4	104.7	R-S

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
1763	9- 9-83	15+90	0C	646.00	8	CL			T	121.3	13.3	3	115.0	13.8	-.5	105.5	
1764	9- 9-83	17+86	22U	648.00	8	CL			T	115.7	14.5	3	115.2	14.2	.3	100.4	
1765	9- 9-83	14+30	25D	648.00	8	CL			T	114.0	13.3	3	114.2	14.6	-1.3	99.8	
1766	9- 9-83	20+30	20U	648.00	8	CL			T	115.1	14.5	3	113.6	14.8	-.3	101.3	
1767	9-10-83	13+38	10D	647.00	8	CL			T	123.3	12.2	3	116.4	14.0	-1.8	105.9	
1768	9-10-83	10+97	18D	641.00	8	CL			T	119.0	14.1	3	114.5	14.2	-.1	103.9	
1769	9-10-83	12+42	34U	644.00	8	CL			T	118.5	13.4	3	116.7	14.0	-.6	101.5	
1770	9-10-83	10+22	12U	642.00	8	CH	60	41	T	106.0	15.9	3	105.4	18.8	-2.9	100.6	U-R,SEE 1770A
1771	9-13-83	15+73	8D	649.00	8	CL			T	110.8	18.4	3	108.0	18.0	.4	102.6	
1772	9-13-83	11+83	20D	645.00	8	CL			T	108.9	18.5	3	109.2	17.7	.8	99.7	
1770A	9-14-83	10+22	12U	642.00	8	CL			T	109.8	15.8	3	111.8	15.7	.1	98.2	RET. 1770
1773	9-14-83	14+85	20U	649.00	8	CL			T	114.9	15.0	3	112.9	15.4	-.4	101.8	
1774	9-14-83	13+51	24U	648.00	8	CL			T	109.5	14.4	3	112.8	15.8	-1.4	97.1	H.C.
1775	9-14-83	11+77	10D	648.00	8	CL			T	119.1	14.3	3	114.2	14.7	-.4	104.3	
1777	9-19-83	12+60	15U	651.00	8	CL	41	24	T	118.3	14.1	3	116.4	14.4	-.3	101.6	
1777	9-19-83	12+60	15U	651.00	8	CL	41	24	T	118.3	14.1	5	114.1	14.6	-.5	103.7	
1778	9-19-83	15+65	10D	651.00	8	CL			T	113.1	14.0	3	115.8	13.9	.1	97.7	
1779	9-23-83	19+18	6U	653.00	8	CL			T	122.9	13.0	3	113.3	15.4	-2.4	108.5	U,NO ACT.

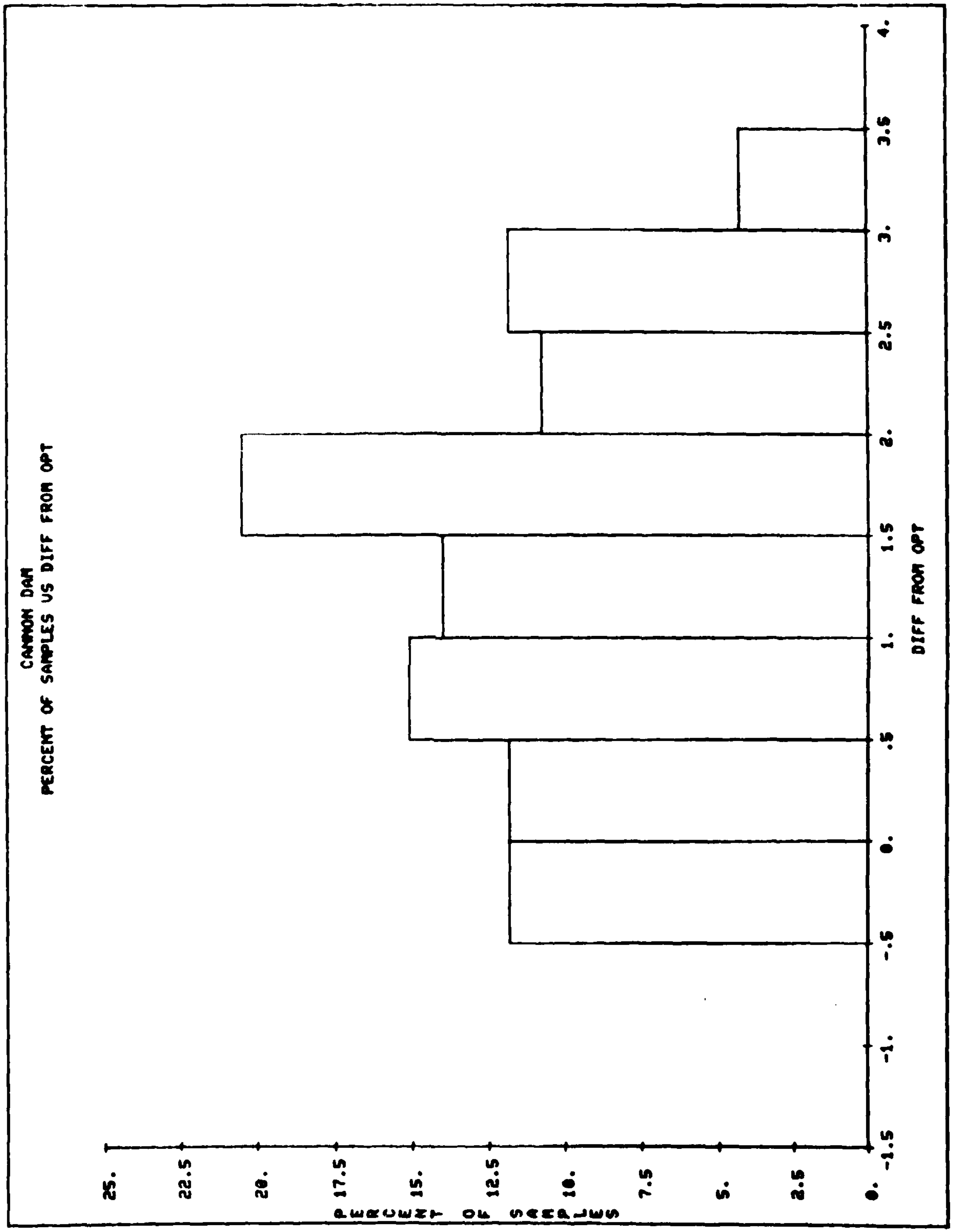
CANNON DAM
PERCENT OF SAMPLES VS DIFF FROM OPT
DIFF FROM OPT
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PLATE NO. 137

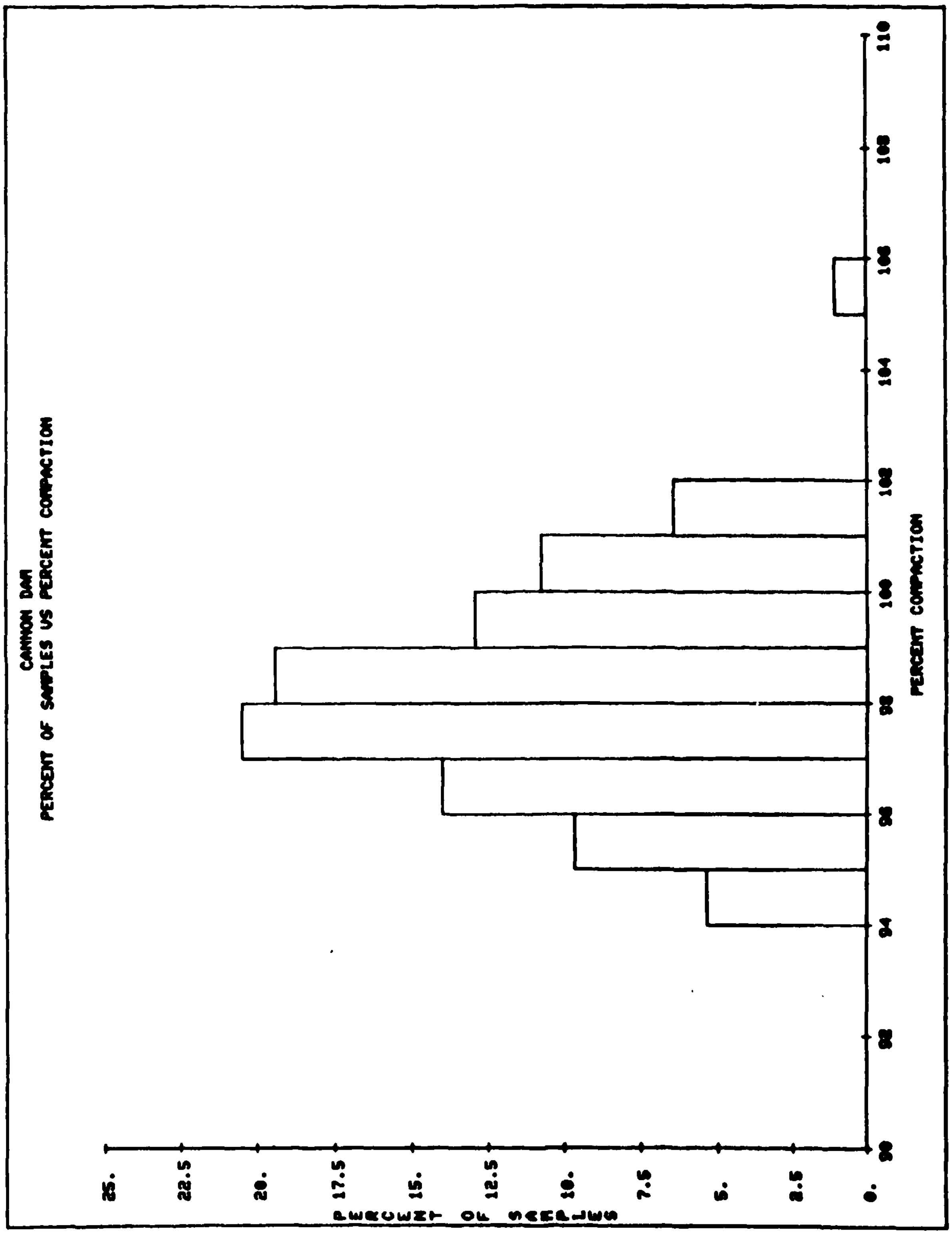
CANNON DAM
PERCENT OF SAMPLES VS PERCENT COMPACTION
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PLATE NO. 138

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-				CONTRACTOR-		DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
294	10- 7-79	17+15	136D	523.00	8	CL			T	107.9	18.3	3	110.9	16.6	1.7	97.3	L.A.
323	10-13-79	17+50	15U	527.00	8	CL			T	110.1	17.3	3	113.4	15.7	1.6	97.1	L.A.
324	10-13-79	17+43	47D	525.00	8	CL			T	114.2	16.2	3	116.3	13.9	2.3	98.2	L.A.
330	10-16-79	17+40	90U	533.00	8	CL			T	109.6	17.5	3	114.8	14.8	2.7	95.5	L.A.
344	10-25-79	17+30	25D	534.00	8	CL			T	111.9	17.7	3	110.4	17.1	.6	101.4	L.A.
352	10-26-79	17+30	100U	539.00	8	CL			T	108.4	18.5	3	109.1	17.0	1.5	99.4	L.A.
353	10-26-79	17+40	20D	539.00	8	CL			T	108.9	18.2	3	109.0	16.6	1.6	99.9	L.A.
357	10-26-79	17+77	100D	540.00	8	CL			T	106.4	19.9	3	109.2	16.5	3.4	97.4	U,NO ACT. LA
361	10-27-79	17+77	95U	547.00	8	CL			T	105.2	18.6	3	98.2	18.1	.5	97.2	L.A.
375	11- 1-79	17+50	30D	539.00	8	CL			T	108.2	19.6	3	110.3	17.8	1.8	98.1	L.A.
608	8-20-80	9+86	15D	556.00	8	CL			T	103.8	21.9	3	108.2	19.0	2.9	95.9	C.S.
663	8-30-80	9+89	30D	553.00	8	CL			T	112.6	15.6	3	112.1	15.9	-.3	100.4	C.S.,U,NO ACT.
674	9-10-80	18+ 5	8U	552.00	8	CL			T	112.2	16.0	3	113.6	15.4	.6	98.8	L.A.
684	9-12-80	18+ 5	6D	556.00	8	CL			T	115.7	13.8	3	115.6	14.6	-.8	100.1	U-R,MAT.REM.,LA
716	9-24-80	17+98	28U	558.00	8	CL			T	114.7	16.4	3	115.8	14.4	2.0	99.1	L.A.
736	9-27-80	9+83	17D	561.00	8	CL			T	102.2	21.1	3	104.1	20.1	1.0	98.2	C.S.
752	10- 1-80	18+16	6U	560.00	8	CL			T	111.3	16.5	3	111.5	16.4	.1	99.8	L.A.,H.C.
753	10- 1-80	9+84	10D	563.00	8	CL			T	113.2	14.8	3	113.2	15.6	-.8	100.0	U-R,MAT.REM.,CS
760	10- 2-80	18+15	51U	561.00	8	CL			T	101.2	22.7	3	102.0	21.4	1.3	99.2	L.A.
761	10- 3-80	18+17	21D	562.00	8	CL	47	28	T	103.4	22.3	3	105.2	21.7	.6	98.3	L.A.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
761	10- 3-80	18+17	21D	562.00	8	CL	47	28	T	103.4	22.3	5	103.0	21.6	.7	100.4	L.A.
765	10- 3-80	18+20	42D	564.00	8	CL			T	102.2	20.5	3	101.7	20.6	-.1	100.5	L.A.,U,NO ACT.
792	10-13-80	18+19	30U	564.00	8	CL			T	106.7	20.1	3	107.2	18.6	1.5	99.5	L.A.
796	10-14-80	18+20	6D	567.00	8	CL			T	105.9	20.2	3	106.4	19.4	.8	99.5	L.A.
818	11-10-80	18+24	2U	569.00	8	CL			T	107.2	17.7	3	111.8	15.4	2.3	95.9	L.A.
820	11-10-80	18+13	50D	569.00	8	CL	33	16	T	109.7	17.6	3	111.6	15.8	1.8	98.3	L.A.
820	11-10-80	18+13	50D	569.00	8	CL	33	16	T	109.7	17.6	5	111.3	16.2	1.4	98.6	L.A.
847	6-17-81	18+26	50U	567.00	8	CL			T	110.1	17.3	3	113.9	15.8	1.5	96.7	L.A.
861	6-19-81	18+20	100D	571.00	8	CL			T	110.0	17.9	3	113.3	14.8	3.1	97.1	U,NO ACT.,HC,LA
867	6-29-81	9+86	12D	569.00	8	CL			T	109.8	16.3	3	114.4	15.5	.8	96.0	C.S.
874	7- 2-81	18+28	29D	573.00	8	CL			T	116.5	15.5	3	115.9	13.2	2.3	100.5	L.A.
948	9-10-81	9+86	25D	556.00	8	CL			T	113.5	16.8	3	111.4	16.2	.6	101.9	C.S.
959	9-14-81	9+86	15D	562.00	8	CL			T	109.8	18.0	3	113.6	15.6	2.4	96.7	C.S.
977	9-19-81	9+85	4D	569.00	8	CL			T	110.9	18.5	3	113.0	16.0	2.5	98.1	C.S.
996	9-24-81	9+86	12U	565.00	8	CL			T	109.6	17.7	3	111.6	16.6	1.1	98.2	C.S.,H.C.
1000	9-25-81	9+85	24D	571.00	8	CL	35	20	T	108.0	16.9	3	111.4	15.8	1.1	96.9	C.S.
1000	9-25-81	9+85	24D	571.00	8	CL	35	20	T	108.0	16.9	5	109.7	16.4	.5	98.5	C.S.
997	9-25-81	9+83	15U	572.00	8	CL			T	112.1	15.7	3	110.7	15.9	-.2	101.3	C.S.,U,NO ACT.
1010	9-29-81	9+88	5U	574.00	8	CL	35	20	T	112.9	15.8	3	112.6	15.9	-.1	100.3	U,NO ACT.,CS
1038	10- 9-81	9+49	13U	581.00	0	CL			T	93.5	28.0	3	99.1	22.2	5.8	94.3	U-R,MAT. REM.

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-
						CLASSI FICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTER BERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1041	10-20-81	9+86	10D	575.00	8	CL	36	20	T	109.7	18.1	3	110.1	16.9	1.2	99.6	C.S.
1041	10-20-81	9+86	10D	575.00	8	CL	36	20	T	109.7	18.1	5	109.5	16.5	1.6	100.2	C.S.
1050	10-21-81	9+49	13U	585.00	8	CL	33	18	T	111.8	17.7	3	113.4	15.1	2.6	98.6	C.S.
1055	10-21-81	9+85	3D	581.00	8	CL			T	108.0	18.8	3	112.7	15.4	3.4	95.8	U-R,MAT. REM.
1058	10-22-81	9+79	13U	589.00	8	CL			T	111.0	16.1	3	113.9	15.8	.3	97.5	C.S.
1093	4-29-82	18+ 0	97D	553.00	8	CL			T	104.8	20.0	3	108.8	17.5	2.5	96.3	LA,HC,FLR
1099	5- 1-82	18+15	99D	557.00	8	CL			T	105.0	19.6	3	108.4	17.6	2.0	96.9	LA,HC,FLR
1127	6-25-82	18+ 8	92D	562.00	8	CL			T	109.2	16.8	3	110.8	16.4	.4	98.6	L.A.
1128	6-26-82	18+10	106D	564.00	8	CL			T	112.2	17.8	3	110.2	17.0	.8	101.8	LA,HC,FLR
1134	6-30-82	18+10	80D	566.00	8	CL			T	109.0	16.2	3	112.4	15.7	.5	97.0	L.A.,FLR
1153	7-12-82	18+34	25U	573.00	8	CL			T	107.1	18.7	3	109.4	17.0	1.7	97.9	L.A.
1261	8-22-82	9+84	20D	573.00	8	CL			T	126.5	12.1	3	112.0	15.5	-3.4	112.9	U-R,SEE1261A,CS
1285	9-12-82	18+15	82D	571.00	8	CL			T	113.4	13.5	3	116.7	14.0	-.5	97.2	U-R,MAT REM LA
1296	9-22-82	18+14	79D	572.00	8	CL	31	19	T	113.9	15.2	5	113.0	14.8	.4	100.8	L.A.
1296	9-22-82	18+14	79D	572.00	8	CL	31	19	T	113.9	15.2	3	113.7	15.3	-.1	100.2	U,NO ACT,LA
1298	9-23-82	18+35	34U	580.00	8	CL			T	108.4	18.0	3	108.9	17.9	.1	99.5	LA
1306	9-28-82	9+85	7D	578.00	8	CL			T	106.4	20.1	3	111.2	16.4	3.7	95.7	U-R,MAT REM,CS
1310	9-30-82	18+32	16D	577.00	8	CL			T	110.2	18.1	3	112.6	15.5	2.6	97.9	LA
1311	9-30-82	9+86	11D	577.00	8	CL			T	115.1	15.8	3	114.2	15.1	.7	100.8	CS
1315	10- 2-82	18+32	35D	580.00	8	CL			T	109.7	17.7	3	113.6	15.9	1.8	96.6	L.A.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

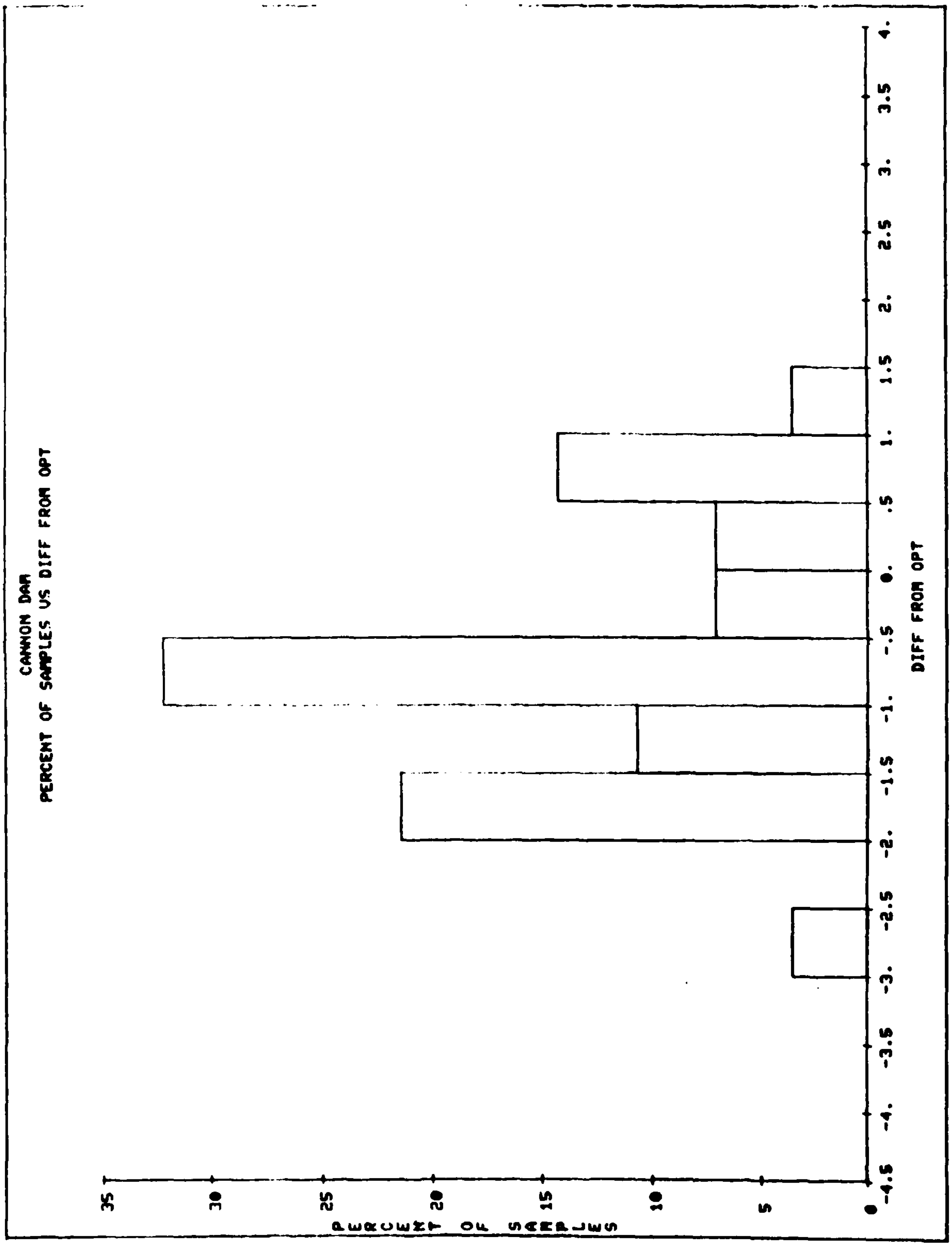
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1334	10-13-82	9+85	6D	581.00	8	CL			T	107.1	17.1	3	113.0	15.8	1.3	94.8	U,NO ACT CS
1364	10-25-82	9+85	3D	584.00	8	CL			T	107.8	18.6	3	107.5	18.2	.4	100.3	C.S.
1378	11- 5-82	18+43	1D	585.00	8	CL			T	103.8	21.5	3	106.6	18.7	2.8	97.4	L.A.
1383	11- 7-82	18+44	46D	588.00	8	CH			T	106.5	19.6	3	107.5	19.0	.6	99.1	L.A.
1384	11- 7-82	9+85	2U	585.00	8	CL			T	109.1	19.1	3	107.9	18.1	1.0	101.1	C.S.
1393	11-10-82	9+85	1U	589.00	8	CL			T	103.5	17.5	3	106.7	18.2	-.7	97.0	U-R,MAT. REM. CS
1399	11-17-82	9+78	15U	594.00	8	CL			T	110.2	17.5	3	112.9	15.6	1.9	97.6	C.S.
1401	11-17-82	18+59	68U	595.00	8	CL			T	105.7	20.4	3	108.2	18.8	1.6	97.7	L.A.
1406	5- 9-83	18+50	15U	590.00	8	CL			T	97.4	16.3	3	107.0	18.5	-2.2	91.0	U-R,MAT REM LA
1409	5-10-83	18+50	15U	590.00	8	CL	49	36	T	106.2	17.8	5	107.0	17.6	.2	99.3	L.A.
1409	5-10-83	18+50	15U	590.00	8	CL	49	36	T	106.2	17.8	3	109.4	17.8	0.0	97.1	LA
1415	5-13-83	18+55	23D	594.00	8	CL			T	108.4	19.5	3	110.3	17.4	2.1	98.3	LA
1418	5-16-83	18+60	53U	599.00	8	CL			T	109.8	18.8	3	109.0	17.9	.9	100.7	LA
1437	6- 1-83	18+55	21D	596.00	8	CL			T	109.6	18.2	3	111.4	16.7	1.5	98.4	L.A.
1456	6- 9-83	9+85	15D	588.50	8	CL			T	111.1	17.0	3	113.2	15.4	1.6	98.1	C.S.
1465	6-10-83	9+70	15U	595.00	8	CL			T	108.6	18.5	3	111.0	16.0	2.5	97.8	C.S.
1469	6-10-83	18+60	5D	602.00	8	CL			T	109.2	18.5	3	113.4	15.4	3.1	96.3	U,NO ACT. LA
1473	6-12-83	18+90	33D	605.00	8	CL			T	108.6	16.5	3	114.1	15.1	1.4	95.2	L.A.
1497	6-18-83	9+83	18D	592.00	8	CL			T	107.9	16.3	3	111.0	16.5	-.2	97.2	U-R,MAT. REM. CS
1501	6-28-83	9+84	2U	594.00	8	CL	29	14	T	114.5	14.3	5	116.0	14.2	.1	98.7	C.S.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION: CLASS	ATTERBERG LIMITS: LL	ATTERBERG LIMITS: PI	IN-PLACE DATA: PORTION	IN-PLACE DATA: DRY DENS (PCF)	IN-PLACE DATA: WC	LAB TEST DATA: METHOD	LAB TEST DATA: MAX DRY DENS (PCF)	LAB TEST DATA: OPT WC	CORRELATION: DIFF FROM OPT	CORRELATION: PERC COMP	COMMENTS
1501	6-22-83	9+84	2U	594.00	8	CL	29	14	T	114.5	14.3	3	117.1	14.2	.1	97.8	C.S.
1506	6-23-83	9+69	15U	598.00	8	CL			T	103.8	15.9	3	114.6	15.3	.6	90.6	U-R,SEE 1506A
1513	6-24-83	18+60	20D	604.00	8	CL			T	109.6	18.3	3	111.2	16.3	2.0	98.6	L.A.
1518	6-25-83	18+50	40U	608.00	8	CL			T	108.0	16.9	3	113.9	14.7	2.2	94.8	U,NO ACT. LA
1506A	6-30-83	9+69	15U	599.00	8	CL			T	110.2	18.1	3	114.9	15.2	2.9	95.9	RET. 1506,CS
1532	7- 1-83	9+62	14U	603.00	8	CL			T	108.0	16.7	3	112.3	16.0	.7	96.2	C.S.
1561	7- 8-83	9+82	0D	602.00	8	CL			T	107.8	17.7	3	112.8	15.1	2.6	95.6	C.S.
1569	7- 9-83	19+52	4U	611.00	8	CL			T	107.6	21.0	3	110.8	16.5	4.5	97.1	U-R,SEE 1569A
1569A	7-11-83	19+52	4U	611.00	8	CL			T	113.8	15.3	3	112.5	15.5	-.2	101.2	U,NO ACT LA
1574	7-11-83	9+68	14U	605.00	8	CH			T	103.5	21.8	3	103.4	20.6	1.2	100.1	C.S.
1580	7-12-83	20+ 5	8U	613.00	8	CL	34	20	T	109.9	17.8	3	111.9	15.9	1.9	98.2	L.A.
1580	7-12-83	20+ 5	8U	613.00	8	CL	34	20	T	109.9	17.8	5	112.0	15.8	2.0	98.1	L.A.
1593	7-17-83	18+90	39U	614.00	8	CL			T	109.8	16.2	3	112.7	16.3	-.1	97.4	U,NO ACT. LA
1602	7-18-83	9+83	11U	607.00	8	CL			T	102.7	20.1	3	104.1	19.8	.3	98.7	C.S.
1611	7-20-83	9+63	14U	611.00	8	CL			T	107.1	18.9	3	110.1	16.9	2.0	97.3	C.S.
1625	7-22-83	19+60	25U	617.00	8	CL			T	111.2	17.4	3	114.9	14.8	2.6	96.8	L.A.
1633	7-24-83	9+75	15U	613.00	8	CL			T	113.6	14.6	3	116.5	14.3	.3	97.5	C.S.
1641	7-28-83	18+93	42U	620.00	8	CL			T	111.1	15.6	3	114.4	14.6	1.0	97.1	L.A.
1658	8- 3-83	20+67	15U	623.00	8	CL			T	103.3	20.5	3	109.0	17.4	3.1	94.8	U,NO ACT. LA
1661	8- 3-83	9+84	7D	618.00	8	CL			T	105.5	18.4	3	111.7	16.3	2.1	94.4	U-R,MAT REM CS

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

						CLASSIFICATION			IN-PLACE DATA			LAB TEST DATA			CORRELATION		
							ATTERBERG LIMITS										
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASS	LL	PI	PORTION	DRY DENS (PCF)	WC	METHOD	MAX DRY DENS (PCF)	OPT WC	DIFF FROM OPT	PERC COMP	COMMENTS
1672	8- 5-83	9+64	14U	617.00	8	CL			T	103.3	19.8	3	109.4	17.6	2.2	94.4	U-R,SE 1672A CS
1672A	8-10-83	9+64	14U	617.00	8	CL			T	107.7	18.0	3	113.9	15.1	2.9	94.6	U,NO ACT RET 1672
1694	8-11-83	9+72	15U	623.00	8	CL			T	109.1	16.0	3	109.4	16.3	-.3	99.7	U,NO ACT. CS
1712	8-14-83	20+70	19U	627.00	8	CL			T	108.5	19.3	3	111.9	16.7	2.6	97.0	L.A.
1716	8-17-83	9+83	5D	628.00	8	CL			T	104.8	20.0	3	108.3	18.1	1.9	96.8	C.S.
1721	8-18-83	9+78	15U	633.00	8	CL			T	103.8	20.8	3	107.4	17.9	2.9	96.6	C.S.
1735	8-21-83	19+83	38U	633.00	8	CL			T	106.3	20.2	3	108.5	17.7	2.5	98.0	L.A.
1739	8-21-83	20+40	29U	634.00	8	CL			T	105.7	20.0	3	107.7	18.3	1.7	98.1	L.A.
1742	8-22-83	20+15	32U	638.00	8	CL			T	106.4	19.7	3	107.5	17.9	1.8	99.0	L.A.
1746	8-26-83	20+20	33U	645.00	8	CL			T	110.2	18.8	3	110.0	16.8	2.0	100.2	L.A.
1755	9- 2-83	9+83	4D	635.00	8	CL			T	110.2	18.6	3	111.0	17.4	1.2	99.3	C.S.
1759	9- 7-83	9+71	15U	643.00	8	CL			T	111.0	15.6	3	116.9	14.1	1.5	95.0	C.S.
1778	9-14-83	9+81	12D	649.00	8	CL			T	110.4	14.4	3	115.9	14.5	-.1	95.3	U,NO ACT CS



CANNON DAM
PERCENT OF SAMPLES VS DIFF FROM OPT
DIFF FROM OPT
PERCENT OF SAMPLES
-4.5 -4. -3.5 -3. -2.5 -2. -1.5 -1. -.5 0. .5 1. 1.5 2. 2.5 3. 3.5 4.
0 5 10 15 20 25 30 35

PLATE NO. 145

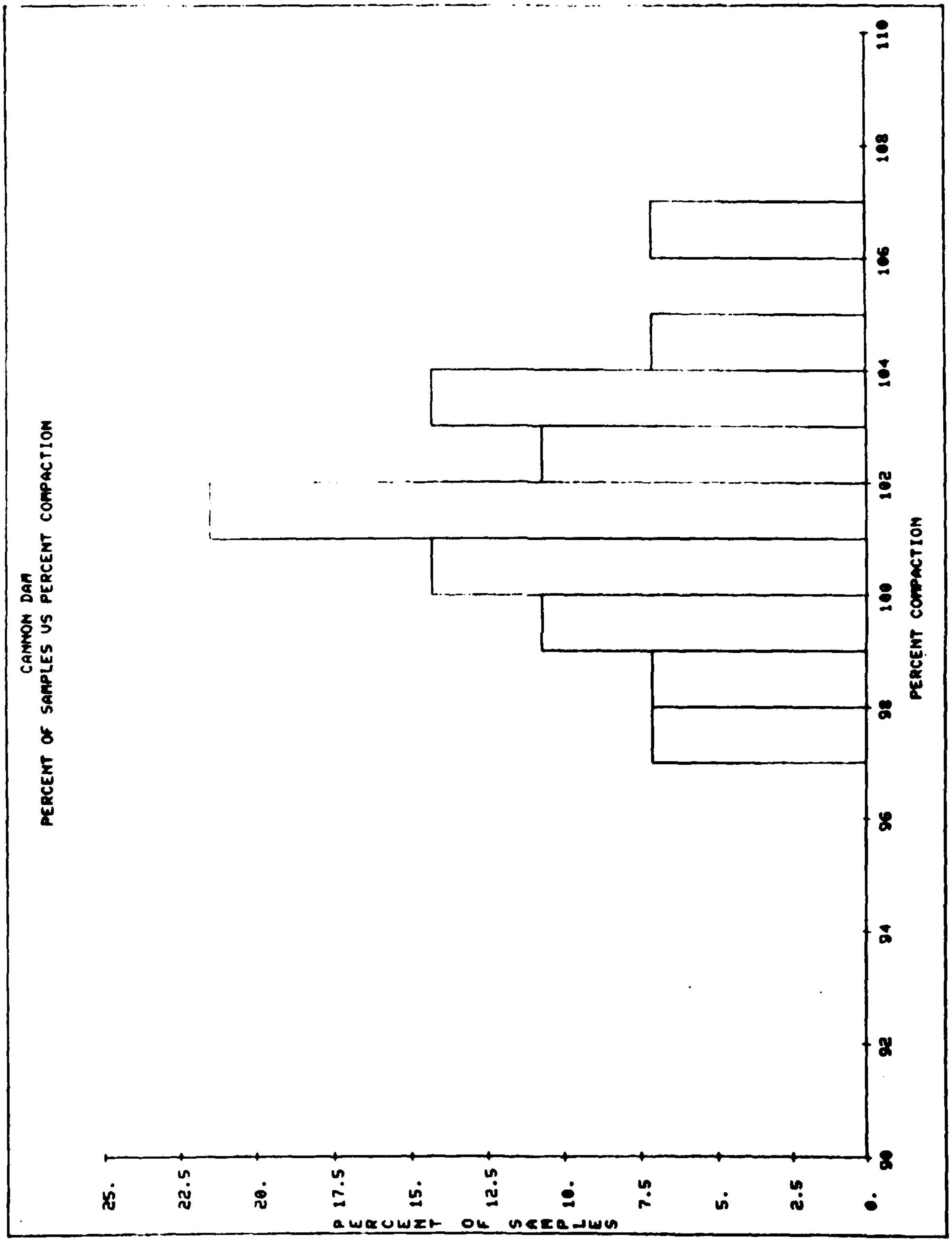

CANNON DAM
PERCENT OF SAMPLES VS PERCENT COMPACTION
PERCENT COMPACTION
PERCENT OF SAMPLES
90
92
94
96
98
100
102
104
106
108
110
0.
2.5
5.
7.5
10.
12.5
15.
17.5
20.
22.5
25.

PLATE NO. 146

PROJECT-			RIVER-		STATE-			TOWN-			CONTRACT NO.-			CONTRACTOR-		DATE-

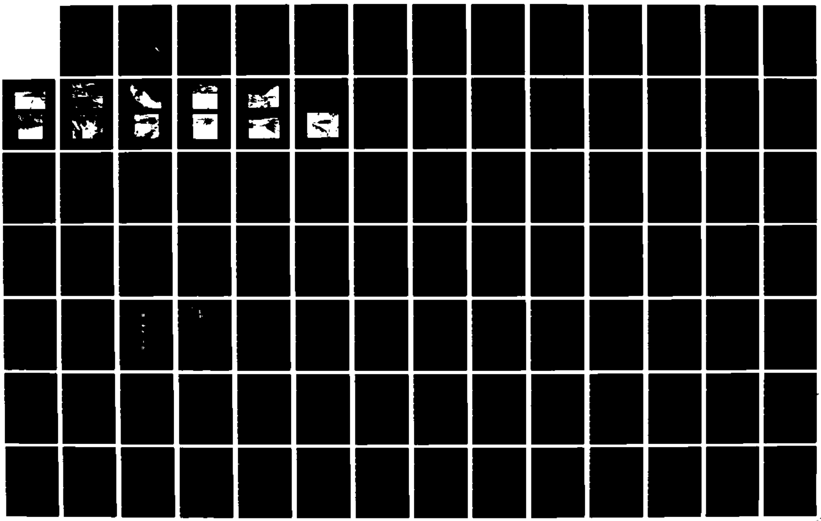
TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
SD-1	7-30-74	22+40	4R	638.00	6	CH(E)			T	102.4	22.8	3	97.5	23.6	-.8	105.0	
SD-2	7-30-74	21+65	0C	639.00	6	CH(E)			T	101.0	18.7	3	102.3	20.6	-1.9	98.7	
SD-3	7-31-74	17+45	5L	645.00	6	CH(E)			T	98.6	18.8	3	104.1	19.8	-1.0	94.7	U-R,REV.
SD-4	7-31-74	21+69	0C	645.00	6	CH(E)			T	108.6	19.0	3	103.8	19.6	-.6	104.6	
SD-5	7-31-74	6+50	0C	642.00	6	CH			T	104.7	18.5	3	102.8	21.2	-2.7	101.8	U-NO ACTION
SD-6	8- 1-74	8+70	2R	642.00	6	CH(E)			T	102.4	20.8	3	101.2	21.7	-.9	101.2	
SD-7	8- 1-74	4+45	0C	645.00	6	CH(E)			T	100.3	22.5	3	100.2	21.9	.6	100.1	
SD-8	8- 1-74	7+31	6L	644.00	6	CH(E)			T	98.7	23.6	3	99.3	22.4	1.2	99.4	U-NO ACTION
SD-10	8- 5-74	21+ 0	5R	642.00	6	CH	67	43	T	100.1	20.1	3	97.0	21.6	-1.5	103.2	U-NO ACTION
SD-9	8- 5-74	20+ 0	10L	642.00	6	CH(E)			T	106.3	18.2	3	104.7	18.8	-.6	101.5	
SD-11	8-12-74	18+50	0C	643.00	6	CH(E)			T	109.6	18.9	3	102.8	20.1	-1.2	106.6	
SD-12	8-12-74	19+70	10R	642.00	6	CH(E)			T	103.8	17.1	3	99.5	22.1	-5.0	104.3	U-R,REV.
SD-13	8-13-74	18+50	0C	643.00	6	CH(E)			T	102.8	21.0	3	99.0	22.8	-1.8	103.8	
SD-14	8-13-74	20+67	30L	643.00	6	CH(E)			T	99.8	21.9	3	99.5	22.8	-.9	100.3	
SD-15	8-14-74	17+18	3L	645.00	6	CH	67	43	T	99.3	21.3	3	98.5	23.0	-1.7	100.8	
SD-16	8-14-74	7+12	0C	644.00	6	CH(E)			T	105.4	18.5	3	102.3	20.3	-1.8	103.0	
SD-17	8-14-74	18+45	28L	644.00	6	CH(E)			T	103.6	20.6	3	101.5	21.0	-.4	102.1	
SD-18	8-14-74	9+ 0	9R	648.00	6	CH(E)			T	103.4	18.4	3	104.0	19.7	-1.3	99.4	
SD-19	8-14-74	18+91	22R	646.00	6	CH(E)			T	99.1	20.1	3	99.1	20.7	-.6	100.0	
SD-20	8-15-74	6+13	16R	646.00	6	CH	61	43	T	103.0	21.9	3	101.0	21.0	.9	102.0	

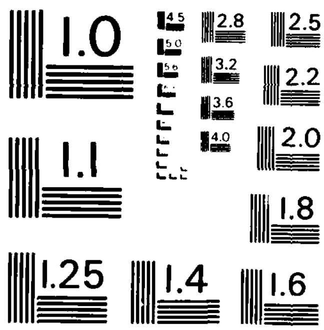
PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	STA	OFFS (FT)	ELEV (FT)	DEPTH (IN)	CLASSIFICATION CLASS	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	IN-PLACE DATA PORTION	IN-PLACE DATA DRY DENS (PCF)	IN-PLACE DATA WC	LAB TEST DATA METHOD	LAB TEST DATA MAX DRY DENS (PCF)	LAB TEST DATA OPT WC	CORRELATION DIFF FROM OPT	CORRELATION PERC COMP	COMMENTS
SD-21	8-15-74	4+25	10L	649.00	6	CH(E)			T	101.5	20.7	3	99.8	21.5	-.8	101.7	
SD-22	8-15-74	17+87	15R	648.00	6	CH(E)			T	102.7	20.3	3	99.8	21.2	-.9	102.9	
SD-23	8-19-74	19+15	10L	644.00	6	CH(E)			T	105.5	18.9	3	102.3	20.7	-1.8	103.1	
SD-24	8-19-74	9+ 0	5R	648.00	6	CH(E)			T	109.9	19.6	3	99.6	22.6	-3.0	110.3	U-R,LAB ERROR
SD-25	8-19-74	7+ 0	18L	644.00	6	CH	50	33	T	109.4	17.0	3	110.6	16.4	.6	98.9	
SD-26	8-20-74	4+52	9L	649.00	6	CL(E)			T	100.9	20.8	3	105.2	19.1	1.7	95.9	U-R SD-27
SD-27	8-20-74	4+52	9L	649.00	6	CL(E)			T	103.4	18.9	3	106.1	18.6	.3	97.5	RETEST SD-26
SD-28	8-21-74	17+ 5	8R	649.00	6	CH(E)			T	106.9	19.8	3	103.7	20.7	-.9	103.1	
SD-29	8-21-74	9+50	7L	651.00	6	CL(E)			T	114.0	15.4	3	106.6	18.7	-3.3	106.9	U-R,REV.
SD-30	8-21-74	22+ 0	12R	652.00	6	CL	46	29	T	108.8	17.6	3	108.3	17.5	.1	100.5	
SD-31	8-21-74	20+45	14R	651.00	6	CL(E)			T	112.1	16.2	3	110.4	16.2	0.0	101.5	
SD-32	8-27-74	20+60	12R	649.00	6	CL(E)			T	109.0	16.3	3	112.2	15.3	1.0	97.1	
SD-33	8-27-74	21+ 0	14R	651.00	6	CH(E)			T	108.3	19.9	3	101.9	21.3	-1.4	106.3	

AD-A160 525 CLARENCE CANNON DAM AND MARK TWAIN LAKE FOUNDATION AND EMBANKMENT COMPLET..(U) ARMY ENGINEER DISTRICT ST LOUIS MO DEC 84 3/4

UNCLASSIFIED F/G 13/13 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

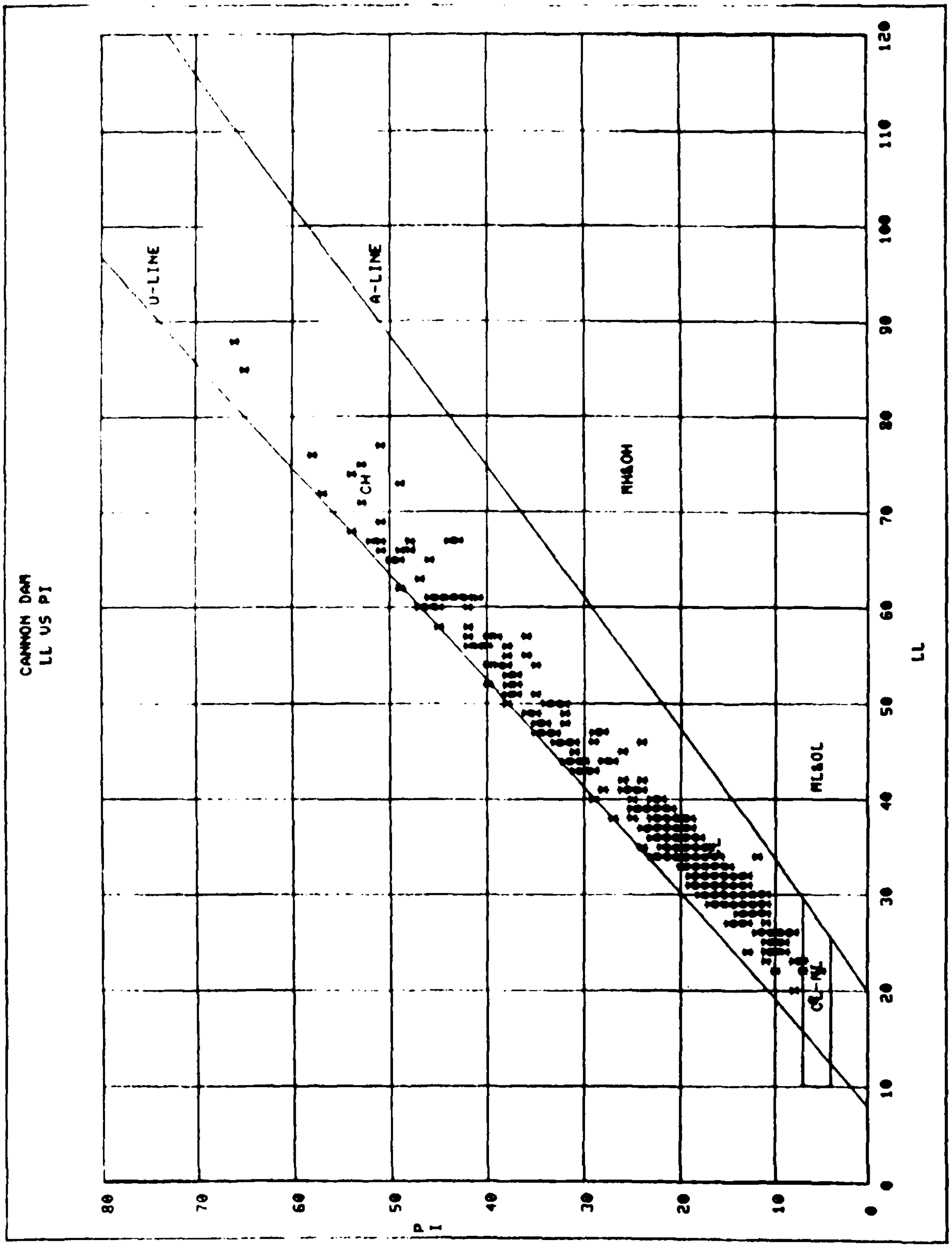
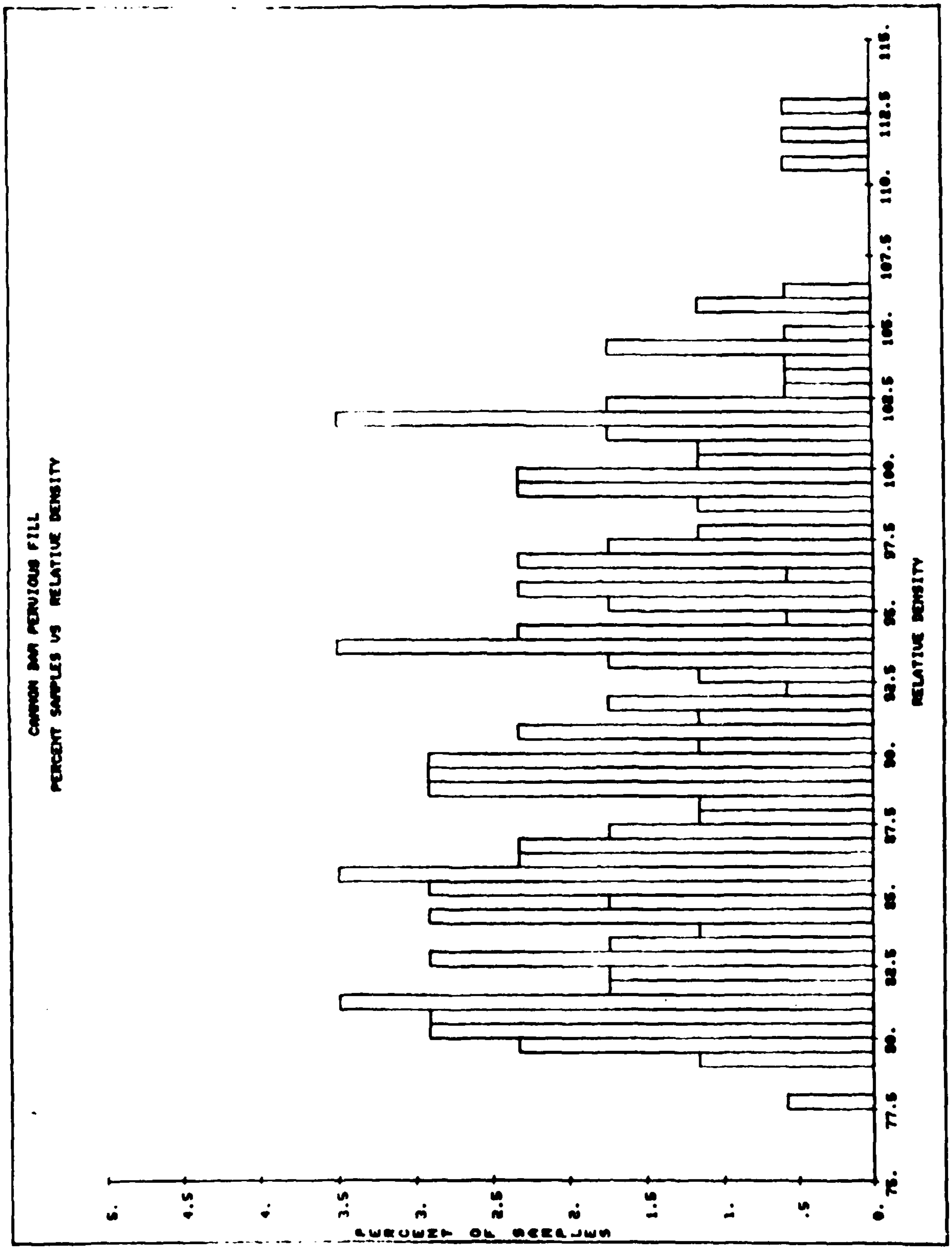


PLATE NO. 149



CANNON DAM PERVIOUS FILL
PERCENT SAMPLES VS RELATIVE DENSITY
RELATIVE DENSITY
75.
77.5
80.
82.5
85.
87.5
90.
92.5
95.
97.5
100.
102.5
105.
107.5
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112.5
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2.
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4.
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PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P158	7-21-80	SU	9+40	50D	545.00	27	SP	100.0	97.8	89.8	75.5	37.7	6.8	.7	117.7	VT	119.8	102.7	89.3DR	
P159	7-21-80	SU	10+20	210D	543.00	27	SP	100.0	98.7	91.4	78.1	41.2	6.5	1.1	115.9	VT	119.8	101.6	81.2DR	
P160	7-21-80	SU	9+35	90D	545.00	27	SP	100.0	98.5	90.0	74.6	42.7	8.7	1.1	118.1	VT	120.2	103.0	89.4DR	
P161	7-21-80	SU	9+67	110D	545.00	18	SP	100.0	96.7	86.5	71.6	35.7	6.3	.8	117.7	VT	119.9	104.4	87.4DR	
P162	7-22-80	SU	12+70	40D	546.00	18	SP	100.0	98.5	90.8	76.8	47.8	10.0	1.1	115.5	VT	119.4	102.2	79.8DR	U, NO ACTION
P163	7-22-80	SU	12+75	9D	546.00	27	SP	100.0	98.5	89.6	76.9	45.1	9.8	1.1	116.3	VT	119.3	102.1	84.4DR	
P164	7-23-80	SU	11+50	287D	543.00	27	SP	100.0	97.5	90.6	78.7	49.9	7.9	1.0	115.6	VT	118.5	101.3	85.2DR	
P165	7-25-80	SU	11+ 6	145D	544.00	22	SP	100.0	98.6	90.7	77.4	49.6	11.0	1.4	115.2	VT	119.1	101.9	79.9DR	U NO ACTION
P166	7-25-80	SU	11+20	450D	542.00	27	SP	100.0	98.3	88.7	74.4	43.3	5.9	3.0	116.3	VT	120.2	103.2	81.3DR	
P167	7-26-80	SU	10+40	320D	543.00	27	SP	100.0	97.4	88.5	74.0	41.9	6.9	1.0	120.6	VT	120.4	103.3	101.1DR	
P168	7-26-80	SU	11+30	450D	542.00	18	SP	100.0	97.6	88.3	73.9	40.8	7.2	1.2	119.0	VT	120.4	103.3	98.6DR	
P169	7-28-80	SU	11+22	450D	544.00	6	SP	100.0			73.3				117.5	VT	120.7	103.6	83.5DR	
P170	7-28-80	SU	11+22	450D	543.00	9	SP	100.0	98.3	88.5	73.1	40.3	6.9	1.1	118.7	VT	120.7	103.7	89.7DR	
P171	7-28-80	SU	11+22	450D	542.00	18	SP	100.0	98.5	90.5	77.1	47.0	9.0	1.2	121.4	VT	119.2	102.0	110.7DR	
P172	7-28-80	SU	11+22	450D	541.00	27	SP	100.0			78.5				118.4	VT	119.5	102.3	94.5DR	
P173	7-28-80	SU	11+20	310D	543.00	20	SP	100.0	98.5	89.0	76.0	42.4	9.0	1.3	116.0	VT	119.6	102.5	81.1DR	
P174	7-29-80	SU	10+ 0	190D	545.00	9	SP	100.0	98.0	92.2	79.9	49.2	8.4	1.0	114.8	VT	118.1	101.8	82.2DR	
P175	7-30-80	SU	10+50	385D	542.00	18	SP	100.0	97.6	90.1	77.1	43.5	7.0	1.1	118.0	VT	119.1	102.0	94.4DR	
P177	7-30-80	SU	10+50	385D	543.00	9	SP	100.0			74.4				116.9	VT	120.3	103.2	82.4DR	
P178	7-30-80	SU	9+50	175D	546.00	6	SP	100.0	98.8	91.2	79.0	49.1	9.6	1.1	116.0	VT	118.4	101.2	87.8DR	
P179	7-30-80	SU	11+35	330D	545.00	6	SP	100.0	98.3	89.4	74.6	42.9	7.8	1.6	118.8	VT	120.2	103.2	98.6DR	
P180	7-30-80	SU	11+10	35D	546.00	18	SP	100.0	98.6	90.9	78.4	46.4	11.8	1.4	118.5	VT	118.7	101.4	98.9DR	
P181	7-31-80	SU	10+20	43D	547.00	9	SP	100.0			73.6				119.7	VT	120.6	103.5	94.9DR	

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	METHOD	LABORATORY MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P182	7-31-80	SV	11+ 0	110D	547.00	6	SP	100.0	98.3	88.3	73.1	37.6	7.4	1.2	118.0	VT	120.7	103.7	86.3DR	
P183	7-31-80	SV	11+25	230D	544.00	18	SP	100.0	98.2	89.3	76.7	45.2	10.0	1.4	119.3	VT	119.3	102.3	100.0DR	
P184A	7-31-80	SV	11+50	200D	545.00	10	SP	100.0	98.9	91.8	76.9	45.9	9.1	1.5	115.4	VT	119.2	102.1	80.4DR	RET OF P184
P184	7-31-80	SV	11+50	200D	545.00	10	SP	100.0	98.4	88.9	74.5	43.2	8.3	1.3	111.3	VT	120.2	103.2	51.6DR	U-R,SE P184A
P185	8- 1-80	SV	9+25	135D	542.00	48	SP	100.0	98.7	93.0	77.5	43.1	3.0	.4	110.5	VT	119.0	101.8	54.5DR	U-R,RET78-26
P186	8- 1-80	SV	13+10	280D	546.00	18	SP	100.0	98.8	90.1	75.0	41.9	7.3	1.3	120.3	VT	120.0	102.8	101.5DR	
P187	8- 1-80	SV	12+65	70D	547.00	18	SP	100.0	98.3	89.0	75.8	42.9	9.5	1.5	116.1	VT	119.2	102.5	83.6DR	
P188	8- 1-80	SV	12+75	170D	547.00	28	SP	100.0	97.8	90.3	74.8	41.8	7.6	1.2	116.1	VT	120.1	102.9	78.4DR	U,NO ACTION
P185A	8- 2-80	SV	9+25	135D	542.00	48	SP	100.0			76.0				116.6	VT	119.6	102.5	84.6DR	RET OF P185
P189	8- 2-80	SV	13+25	125D	547.00	27	SP	100.0			78.2				121.4	VT	118.8	101.5	112.6DR	
P190	8- 2-80	SV	12+ 0	100D	546.00	18	SP	100.0	98.0	88.2	78.9	37.5	7.3	1.2	121.8	VT	120.8	103.8	106.0DR	
P-192	8- 2-80	SV	12+85	340D	543.00	27	SP	100.0	98.2	88.0	74.4	41.4	8.7	1.5	116.6	VT	120.2	103.2	81.0DR	
P-193	8- 2-80	SV	13+25	425D	541.00	30	SP	100.0			78.1				118.0	VT	118.8	101.7	95.7DR	
P-194	8- 2-80	SV	13+50	400	546.00	24	SP	100.0			81.7				114.8	VT	117.4	100.2	86.8DR	
P-195	8- 5-80	SV	14+ 3	25D	546.00	18	SP	100.0	97.6	91.4	78.4	47.6	7.1	.8	115.8	VT	118.6	101.5	85.6DR	
P-196	8- 5-80	SV	13+95	300D	546.00	6	SP	100.0			76.0				119.1	VT	120.0	102.9	96.3DR	
P-197	8- 5-80	SV	13+70	455D	543.00	18	SP	100.0			73.6				117.3	VT	120.5	103.5	83.4DR	
P-198	8- 5-80	SV	14+40	170D	545.00	28	SP	100.0			80.6				113.1	VT	117.7	100.6	78.1DR	U-R,REV.
P199	8- 9-80	SV	9+13	85D	548.00	12	SP	100.0			77.0				116.9	VT	119.2	102.0	88.3DR	
P200	8-11-80	SV	10+15	325D	547.00	12	SP	100.0			79.4				107.7	VT	118.3	101.0	42.5DR	U-R SE P200A
P200A	8-18-80	SV	10+15	325D	547.00	18	SP	100.0	98.8	91.6	78.1	40.9	6.3	.9	118.3	VT	119.4	102.4	94.4DR	RET P200
P208	8-20-80	SV	9+30	140D	550.00	6	SP	100.0	98.0	90.9	75.0	45.9	8.8	1.0	118.5	VT	120.0	102.9	98.4DR	
P209	8-20-80	SV	9+46	46D	562.00	12	SP	100.0	98.1	90.1	76.8	44.4	8.8	1.0	115.6	VT	119.3	102.1	81.0	SAND CHIM.

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

								Percent Passing							Dry Density					
																Laboratory				
TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	3/8	4	8	16	30	50	100	FIELD (PCF)	METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P214	8-20-80	SU	12+20	5D	549.00	10	SP	100.0			79.0				115.4	UT	118.5	101.2	84.3DR	SAND CHIM.
P216	8-25-80	SU	9+28	98D	552.00	8	SP	100.0	97.3	90.5	78.6	52.1	9.9	1.0	113.3	UT	118.6	101.4	72.4DR	U-R SE 216A
P216A	8-28-80	SU	9+28	98D	552.00	8	SP	100.0			79.7				117.7	UT	118.3	101.0	97.0DR	RET OF 216
P217	9- 8-80	SU	10+50	18D	550.00	8	SP	100.0	98.0	91.2	79.8	51.6	10.0	1.5	117.3	UT	119.4	101.2	90.0DR	
P219	9-19-80	SU	12+53	5D	567.00	8	SP	100.0			74.5				120.2	UT	120.2	103.1	100.0DR	
P224	10- 4-80	SU	17+55	295D	563.00	12	SP	100.0	98.6	90.3	75.1	44.1	7.4	.8	116.9	UT	119.9	102.9	84.5DR	
P225	10- 6-80	SU	12+35	5D	561.00	12	SP	100.0	98.9	91.1	78.1	48.9	9.6	1.0	119.5	UT	118.7	101.6	104.0DR	
P234	8- 8-81	SU	7+83	175D	548.00	12	SP	100.0	98.0	90.4	79.5	53.9	12.6	1.8	118.7	UT	118.3	101.0	102.0DR	FLR
P235	8-11-81	SU	7+82	156D	544.00	12	SP	100.0	98.5	87.9	71.1	40.5	8.0	1.4	119.5	UT	121.5	104.6	89.6DR	FLR
P236	9-10-81	SU	10+64	3D	561.00	12	SP	100.0	97.3	89.4	77.3	38.8	6.8	.8	117.9	UT	119.1	101.9	94.0DR	FLR
P237	9-11-81	SU	10+ 5	22D	564.00	12	SP	100.0	98.0	90.1	77.7	44.5	9.3	2.1	116.1	UT	118.9	101.7	86.7DR	FLR
P238	9-11-81	SU	9+56	34D	565.00	12	SP	100.0	98.1	88.9	75.7	44.6	8.4	1.2	117.0	UT	119.7	102.5	86.2DR	FLR
P239A	9-15-81	SU	10+60	8D	559.00	12	SP	100.0			78.4				115.1	UT	118.6	101.5	82.0DR	RETP239,FLR
P239	9-15-81	SU	10+60	8D	559.00	12	SP	100.0			77.6				113.0	UT	118.9	101.8	68.9DR	U-R,SEEP239A
P240	9-17-81	SU	10+57	6D	562.00	12	SP	100.0	99.1	91.2	76.2	44.1	8.7	1.3	112.8	UT	119.5	102.3	64.7DR	U-R,SEEP240A
P240A	9-18-81	SU	10+57	6D	562.00	12	SP	100.0	98.7	91.4	78.2	43.7	7.4	1.4	118.3	UT	118.8	101.6	97.5DR	RET.P240,FLR
P241	9-22-81	SU	12+73	448D	540.00	12	SP	100.0	99.2	92.1	79.0	44.6	10.0	1.3	118.5	UT	118.5	101.2	100.0DR	FLR
P242	10- 3-81	SU	13+28	380D	543.00	10	SP	100.0			77.4				116.6	UT	119.0	101.8	87.8DR	FLR
P243	10- 3-81	SU	13+29	380D	548.00	18	SP	100.0	98.4	89.7	76.8	45.7	11.2	1.2	117.3	UT	119.4	102.5	89.1DR	FLR
P244	10- 3-81	SU	14+11	222D	544.00	12	SP	100.0	98.1	90.1	77.3	44.0	10.8	1.2	117.8	UT	119.0	101.9	94.0DR	FLR
P245	10- 3-81	SU	13+80	158D	544.00	18	SP	100.0	98.0	91.0	78.8	48.0	10.2	.8	117.3	UT	118.5	101.3	94.0DR	FLR
P246	10- 4-81	SU	14+86	120D	546.00	10	SP	100.0			76.2				115.9	UT	119.5	102.4	81.4DR	FLR
P247	10- 4-81	SU	14+79	419D	548.00	18	SP	100.0			78.1				116.9	UT	118.8	101.6	90.4DR	FLR

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P248	10- 4-81	SV	16+24	471D	541.00	18	SP	100.0	98.6	90.6	77.8	46.0	12.4	1.3	116.0	VT	118.9	101.7	85.2DR	FLR
P249	10- 6-81	SV	12+86	400D	543.00	16	SP	100.0	99.0	91.0	77.0	42.8	12.0	1.2	115.4	VT	119.2	102.0	80.5DR	FLR
P250	10- 7-81	SV	15+90	215D	544.00	18	SP	100.0			77.7				116.7	VT	118.9	101.7	88.9DR	FLR
P251	10- 7-81	SV	15+38	360D	543.00	12	SP	100.0	99.1	91.5	78.3	44.4	7.5	1.6	118.0	VT	118.8	101.6	96.0DR	FLR
P252	10- 7-81	SV	15+48	420D	543.00	10	SP	100.0	98.0	90.8	78.3	47.7	8.7	1.9	116.9	VT	118.8	101.6	90.9DR	FLR
P253	10- 7-81	SV	16+15	350D	543.00	10	SP	100.0			79.9				114.1	VT	118.1	100.9	78.4DR	U,REV.,FLR
P254	10- 8-81	SV	17+20	345D	543.00	12	SP	100.0	99.1	91.2	78.1	45.5	7.2	1.1	115.4	VT	118.7	101.6	83.0DR	FLR
P255	10- 8-81	SV	12+15	486D	541.00	24	SP	100.0			79.1				115.8	VT	118.4	101.2	86.8DR	FLR
P256	10- 8-81	SV	16+38	131D	545.00	10	SP	100.0	98.5	90.5	77.8	46.0	6.7	1.1	115.6	VT	118.9	101.8	83.0DR	FLR
P257	10- 8-81	SV	14+15	90D	546.00	12	SP	100.0			78.8				118.6	VT	118.5	101.3	100.6DR	FLR
P258	10- 8-81	SV	13+50	262D	545.00	10	SP	100.0			77.8				119.3	VT	118.9	101.7	102.0DR	FLR
P259	10- 9-81	SV	14+95	348D	543.00	10	SP	100.0			79.7				115.3	VT	118.2	100.9	85.3DR	FLR
P260	10- 9-81	SV	13+63	9D	547.00	18	SP	100.0	98.6	90.5	78.0	51.8	9.2	1.4	120.0	VT	118.8	101.6	105.9DR	FLR
P261	10- 9-81	SV	15+90	105D	546.00	10	SP	100.0	97.6	90.0	76.0	48.3	8.9	1.4	120.2	VT	119.7	102.5	102.5DR	FLR
P262	10-10-81	SV	17+ 0	200D	545.00	8	SP	100.0			78.4				118.2	VT	118.7	101.5	97.5DR	FLR
P263	10-10-81	SV	16+41	309D	544.00	8	SP	100.0			78.0				116.6	VT	118.8	101.6	88.9DR	FLR
P264	10-10-81	SV	12+86	417D	544.00	4	SP	100.0	97.5	89.5	77.2	38.3	5.9	.5	116.9	VT	119.1	101.9	88.9DR	FLR
P265	10-10-81	SV	14+25	139D	547.00	1	SP	100.0	98.7	91.4	78.3	43.9	8.0	1.3	117.8	VT	118.7	101.6	96.5DR	FLR SURFACE
P266	10-10-81	SV	14+86	451D	544.00	1	SP	100.0			79.2				117.3	VT	118.4	101.2	94.5DR	FLR SURFACAE
P-268	10-19-81	SV	15+60	300D	545.00	1	SP	100.0			79.8				114.4	VT	118.3	100.8	80.4DR	FLR,SURFACE
P-267	10-28-81	SV	14+60	5D	549.00	6	SP	100.0			78.0				115.3	VT	118.8	101.6	82.1DR	FLR
P-269	10-28-81	SV	14+16	4D	552.00	8	SP	100.0	98.1	90.0	78.6	50.5	9.2	1.2	114.8	VT	118.6	101.3	80.6DR	FLR
P270A	5- 5-88	SV	16+25	18D	558.00	12	SP	100.0	98.8	90.7	77.2	45.8	6.6	.7	115.6	VT	119.2	102.0	81.5DR	RET.P-270,FL

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P-270	5- 5-82	SV	16+25	20D	552.00	12	SP	100.0	98.5	90.4	76.5	44.5	8.1	.7	114.4	UT	119.4	102.3	73.9DR	U-R SE P270A
P-271	5- 5-82	SV	14+25	5D	553.00	12	SP	100.0	98.8	91.8	79.0	47.8	7.0	.8	115.8	UT	118.5	101.2	86.4DR	FLR, S.C.
P-272	5- 7-82	SV	14+79	6D	558.00	12	SP	100.0	98.6	92.1	81.7	51.7	8.2	1.2	116.5	UT	117.3	100.0	96.0DR	FLR, S.C.
P273A	5-12-82	SV	10+ 0	275D	550.00	12	SP	100.0			77.5				115.3	UT	119.0	101.8	81.0DR	RET.P-273,FL
P-273	5-12-82	SV	10+ 0	275D	550.00	12	SP	100.0			77.3				113.4	UT	119.1	101.9	70.2DR	U-R SE P273A
P-274	5-24-82	SV	10+ 0	300D	560.00	12	SP	100.0			77.9				111.2	UT	118.9	101.7	59.1DR	U-R SE P274A
P274A	5-27-82	SV	10+ 0	300D	560.00	12	SP	100.0			78.7				119.8	UT	118.6	101.3	106.9DR	RET.P-274
P-275	5-28-82	SV	9+30	110D	563.00	12	SP	100.0			78.1				111.0	UT	118.7	101.6	58.8DR	U-R SE P275A
P-276	7- 7-82	SV	12+75	5D	562.00	12	SP	100.0			82.7				111.2	UT	117.1	99.7	69.6DR	U-R SE P276A
P276A	7- 8-82	SV	12+75	5D	562.00	12	SP	100.0	95.7	88.3	76.3	47.2	6.3	.8	117.3	UT	119.6	102.4	88.8DR	RET.P-276
P-277	7- 8-82	SV	16+10	9D	562.00	12	SP	100.0	96.5	89.6	78.5	47.7	6.8	.7	114.4	UT	118.7	101.4	78.0DR	U,REW SC
P-278	7- 9-82	SV	13+96	7D	563.00	12	SP	100.0	97.5	89.2	76.5	46.4	5.3	.7	116.8	UT	119.4	102.3	86.7DR	FLR SC
P-279	7- 9-82	SV	17+11	69D	563.00	12	SP	100.0	96.7	89.3	77.6	49.8	7.4	.7	113.4	UT	119.0	101.8	70.8DR	U-R SE P279A
P-280	7- 9-82	SV	10+ 0	27D	564.00	12	SP	100.0			75.3				112.7	UT	119.9	102.8	61.6DR	U-R SE P280A
P279A	8- 3-82	SV	17+11	69D	563.00	12	SP	100.0			78.0				116.7	UT	118.9	101.6	88.9DR	RET P279 FLR
P281A	8- 4-82	SV	13+15	5D	566.00	12	SP	100.0	97.4	90.8	80.4	51.3	8.8	1.1	116.2	UT	117.9	100.6	91.5DR	RETP281 FLR
P281	8- 4-82	SV	13+15	5D	566.00	12	SP	100.0			78.0				110.8	UT	118.9	101.6	57.1DR	U-R SE P281A
P282	8- 4-82	SV	15+78	6D	567.00	12	SP	100.0	96.7	85.7	71.6	43.3	7.4	.3	118.9	UT	121.3	104.4	87.5DR	FLR SC
P283	8- 5-82	SV	18+ 5	160D	567.00	12	SP	100.0	97.4	90.8	81.2	53.0	10.0	1.4	112.9	UT	117.7	100.4	75.3DR	U-R SEEP283A
P284A	8- 5-82	SV	12+90	5D	568.00	12	SP	100.0			77.7				115.6	UT	119.0	101.8	82.6DR	RETP284 SC
P284	8- 5-82	SV	12+90	5D	568.00	12	SP	100.0			77.0				106.4	UT	119.2	102.1	28.2DR	U-R SEEP284A
P275A	8- 6-82	SV	9+30	110D	563.00	18	SP	100.0			73.8				119.3	UT	120.5	103.4	93.9DR	RETP275 FLR
P280A	8- 6-82	SV	10+ 0	27D	564.00	12	SP	100.0			78.2				119.5	UT	118.8	101.6	103.5DR	RETP280 SC

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P283A	8- 6-82	SU	18+ 5	160D	567.00	12	SP	100.0			81.7				116.5	UT	117.4	100.0	95.6DR	RETP283 LA
P-285	8-18-82	SU	10+ 0	300D	561.00	12	SP	100.0	97.6	91.3	82.3	58.0	10.4	1.2	117.1	UT	117.2	99.6	99.5DR	
P-286	9-21-82	SU	18+ 1	180D	571.00	12	SP	100.0	96.2	87.7	74.6	43.3	7.0	1.1	119.7	UT	120.2	103.1	97.5DR	
P-287	9-24-82	SU	11+82	2D	571.00	12	SP	100.0			78.2				119.7	UT	118.8	101.6	104.4DR	SC
P-288A	9-24-82	SU	9+97	260D	567.00	12	SP	100.0			78.7				117.0	UT	118.6	101.3	92.0DR	RET.P-288
P-288	9-24-82	SU	9+97	260D	567.00	12	SP	100.0			76.8				113.0	UT	119.3	102.1	66.9DR	U-R SE P288A
P-289	9-25-82	SU	11+28	8D	573.00	15	SP	100.0			76.0				113.3	UT	119.6	102.5	66.7DR	U-R SE P289A
P-290	9-25-82	SU	15+65	7D	570.00	12	SP	100.0	96.1	87.3	74.6	46.0	7.2	.7	112.2	UT	120.2	103.1	67.0DR	U-R SE P290A
P-289A	9-26-82	SU	11+28	8D	573.00	12	SP	100.0			72.8				118.0	UT	120.8	103.8	85.5DR	RET.P-289
P-290A	9-26-82	SU	15+65	7D	570.00	15	SP	100.0			73.0				117.1	UT	120.8	103.7	80.8DR	RET.P-290
P-291	9-26-82	SU	16+95	55D	570.00	12	SP	100.0	96.5	87.9	75.3	46.6	7.9	1.2	118.1	UT	119.9	102.8	90.8DR	SC
P-292	9-27-82	SU	17+84	95D	572.00	18	SP	100.0	96.8	87.5	72.8	43.2	7.7	1.1	117.9	UT	120.8	103.8	85.0DR	SC
P-293	9-28-82	SU	9+45	59D	571.00	12	SP	100.0			79.4				120.7	UT	118.3	101.1	111.7DR	
P294A	10- 5-82	SU	18+13	128D	574.00	18	SP	100.0			74.9				120.4	UT	120.0	102.9	102.0DR	RET P294
P294	10- 5-82	SU	18+13	128D	574.00	18	SP	100.0	94.4	85.2	71.8	42.5	8.6	1.5	114.2	UT	121.2	104.2	62.4DR	U-R,SE P294A
P295	10-13-82	SU	15+ 0	6D	577.00	18	SP	100.0	96.6	87.2	74.0	43.1	7.6	1.2	119.2	UT	120.4	103.3	93.9DR	S.C.
P296	10-14-82	SU	14+67	4D	578.00	18	SP	100.0			76.7				117.5	UT	119.4	102.2	90.4DR	S.C.
P297	10-14-82	SU	11+ 0	5D	581.00	18	SP	100.0			77.0				115.7	UT	119.2	102.1	82.0DR	S.C.
P298A	10-15-82	SU	15+30	6D	581.00	18	SP	100.0			75.6				118.2	UT	119.8	102.6	91.9DR	RET OF P298
P298	10-15-82	SU	15+30	6D	581.00	18	SP	100.0			73.5				115.0	UT	120.6	103.5	70.5DR	U-R,SE P298A
P299	10-22-82	SU	18+ 5	225D	574.00	18	SP	100.0			75.0				113.8	UT	120.0	102.9	67.2DR	U-R,SE P299A
P299A	10-24-82	SU	18+ 5	225D	574.00	18	SP	100.0			76.8				119.8	UT	119.3	102.1	102.5DR	RET P299 LA
P300A	10-27-82	SU	14+25	5D	581.00	18	SP	100.0			75.9				118.1	UT	119.7	102.5	91.9DR	RET,P300,S.C

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								PERCENT PASSING							DRY DENSITY					
																LABORATORY				
TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	3/8	4	8	16	30	50	100	FIELD (PCF)	METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P300	10-27-82	SV	14+25	5D	581.00	18	SP	100.0	95.5	87.7	74.8	44.1	8.0	1.2	114.4	UT	120.1	103.0	70.0DR	U-R,SE P300A
P301	10-27-82	SV	12+30	4D	583.00	18	SP	100.0			75.6				112.1	UT	119.8	102.6	59.0DR	U-R,SE P301A
P301A	10-28-82	SV	12+30	4D	583.00	18	SP	100.0			75.6				116.0	UT	119.8	102.6	80.5DR	RET OF P301,
P302	10-28-82	SV	15+ 9	3D	585.00	18	SP	100.0	97.6	88.7	75.7	45.4	9.0	1.3	117.9	UT	119.7	102.6	90.8DR	S.C.
P303A	11-10-82	SV	16+98	37D	581.00	8	SP	100.0			78.7				114.6	UT	118.6	101.3	79.8DR	U,NO ACT,RET
P303	11-10-82	SV	16+98	37D	581.00	8	SP	100.0			78.6				112.1	UT	118.6	101.4	65.8DR	U-R,SE P303A
P304	11-16-82	SV	10+88	5D	587.00	8	SP	100.0			77.1				116.3	UT	119.2	102.0	85.2DR	S.C.
P306	11-16-82	SV	14+25	3D	590.00	8	SP	100.0	97.5	90.4	78.4	49.1	7.9	1.1	111.3	UT	118.7	101.5	60.8DR	U-R,SE P306A
P306A	11-17-82	SV	14+25	3D	590.00	8	SP	100.0			78.6				115.5	UT	118.6	101.4	84.2DR	RET P306,S.C
P-306	5-24-83	SV	17+94	165D	579.00	12	SP	100.0	98.5	90.5	77.6	47.9	9.3	2.1	118.6	UT	119.0	101.8	98.0DR	L.A.
P-307	5-31-83	SV	18+38	114D	583.00	18	SP	100.0	98.4	90.9	78.4	49.2	11.0	2.5	119.1	UT	118.7	101.5	102.0DR	L.A.
P-308	6- 9-83	SV	9+64	142D	579.00	18	SP	100.0			78.3				118.5	UT	118.7	101.5	99.0DR	
P-309	6-13-83	SV	14+10	4D	590.00	12	SP	100.0	98.0	91.0	79.1	50.1	9.5	1.4	118.3	UT	118.4	101.2	99.5DR	S.C.
P-310	6-14-83	SV	12+42	6D	596.00	18	SP	100.0			83.8				113.3	UT	116.7	99.3	82.9DR	S.C.
P-311	6-14-83	SV	16+80	25D	595.00	18	SP	100.0			78.1				114.0	UT	118.8	101.6	75.1DR	U-R,SE P311A
P-311A	6-15-83	SV	16+80	25D	595.00	18	SP	100.0	97.7	88.9	75.6	46.4	10.2	2.2	120.1	UT	119.8	102.6	101.5DR	RET.P-311
P-312	6-15-83	SV	10+39	24D	590.00	18	SP	100.0			75.5				116.6	UT	119.8	102.7	83.5DR	S.C.
P-313	6-16-83	SV	9+44	90D	588.00	15	SP	100.0	98.7	91.0	77.8	48.2	9.2	1.2	118.5	UT	118.9	101.7	98.0DR	
P-314	6-17-83	SV	18+34	110D	591.00	18	SP	100.0			74.4				116.7	UT	120.2	103.2	81.8DR	L.A.
P-315	6-24-83	SV	9+66	34D	587.00	18	SP	100.0	97.7	89.9	77.8	48.8	8.7	1.6	117.1	UT	118.9	101.7	90.9DR	
P-316	6-26-83	SV	18+70	82D	599.00	18	SP	100.0			75.9				119.6	UT	119.7	102.5	90.5DR	L.A.
P-317	6-29-83	SV	10+25	14D	595.00	18	SP	100.0			74.3				114.5	UT	120.3	103.2	69.4DR	U-R,SE P317A
P-317A	6-30-83	SV	10+25	14D	595.00	18	SP	100.0			74.2				117.2	UT	120.3	103.2	84.0DR	RET. P-317

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								PERCENT PASSING							DRY DENSITY					
																LABORATORY				
TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	3/8	4	8	16	30	50	100	FIELD (PCF)	METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P-318A	6-30-83	SV	14+16	4D	600.00	18	SP	100.0			74.8				120.1	VT	120.1	103.0	100.0DR	RET. P-318
P-318	6-30-83	SV	14+16	4D	600.00	18	SP	100.0	95.9	87.4	74.9	46.3	7.8	1.2	115.5	VT	120.0	102.9	76.6DR	U-R,SE P318A
P-319	7- 1-83	SV	11+63	7D	601.00	12	SP	100.0	97.9	90.8	79.0	50.0	9.6	1.2	115.8	VT	118.5	101.2	86.4DR	
P-320	7- 2-83	SV	10+10	75D	598.00	15	SP	100.0	96.2	86.8	74.2	46.0	8.1	.6	119.1	VT	120.3	103.2	93.2DR	
P-321	7- 5-83	SV	9+65	1200	590.00	12	SP	100.0			76.4				116.7	VT	119.5	102.3	85.7DR	
P-322	7- 7-83	SV	10+35	161D	600.00	12	SP	100.0	97.0	89.1	77.5	48.8	10.8	2.0	120.3	VT	119.0	101.8	106.4DR	
P-323	7-12-83	SV	10+35	72D	602.00	18	SP	100.0			76.2				119.0	VT	119.5	102.4	96.3DR	
P-324A	7-13-83	SV	13+66	8D	605.00	12	SP	100.0			81.9				116.7	VT	117.3	100.0	97.0DR	RET. P-324
P-324	7-13-83	SV	13+65	8D	606.00	15	SP	100.0	96.5	89.6	80.4	56.4	11.4	1.7	110.3	VT	117.9	100.6	59.9DR	U-R,SE P324A
P-325	7-13-83	SV	15+40	3D	607.00	15	SP	100.0			79.2				117.1	VT	118.4	101.1	93.5DR	
P-326A	7-14-83	SV	12+ 0	5D	606.00	18	SP	100.0			76.6				117.1	VT	119.4	102.2	88.3DR	RET. P-326
P-326	7-14-83	SV	12+ 0	5D	606.00	18	SP	100.0	97.4	89.2	78.7	48.4	6.9	1.2	113.4	VT	119.4	102.2	68.6DR	U-R,SE P326A
P-327A	7-15-83	SV	10+50	6D	603.00	12	SP	100.0			81.4				117.7	VT	117.5	100.3	101.0DR	RET. P-327
P-327	7-15-83	SV	10+50	6D	603.00	12	SP	100.0			78.9				113.3	VT	118.6	101.3	72.8DR	U-R,SE P327A
P-328	7-18-83	SV	9+50	42D	598.00	12	SP	100.0	96.6	89.0	76.8	47.3	7.6	1.4	116.5	VT	119.3	102.1	85.7DR	
P-329	7-25-83	SV	15+10	5D	612.00	18	SP	100.0	98.7	92.5	82.1	49.3	4.6	.6	115.3	VT	117.3	100.0	90.0DR	
P-330	7-25-83	SV	17+90	60D	611.00	12	SP	100.0	97.2	88.8	76.4	47.1	8.1	1.2	115.3	VT	119.5	102.3	78.3DR	U-R,SE P330A
P-330A	7-26-83	SV	17+90	600	611.00	12	SP	100.0			83.0				113.8	VT	116.9	99.8	84.1DR	RET. P-330
P-331	7-26-83	SV	10+67	5D	614.00	18	SP	100.0			81.7				114.6	VT	117.4	100.1	85.9DR	
P-332	7-27-83	SV	14+10	3D	610.00	15	SP	100.0	96.4	89.4	79.1	53.2	10.0	2.0	116.3	VT	118.4	101.8	89.4DR	
P-333A	7-27-83	SV	10+31	10D	608.00	12	SP	100.0			78.4				118.6	VT	118.7	101.5	99.5DR	RET. P-333
P-333	7-27-83	SV	10+31	10D	608.00	12	SP	100.0			78.5				109.7	VT	118.7	101.4	51.9DR	U-R,SE P333A
P-334	7-28-83	SV	10+ 8	13D	612.00	18	SP	100.0			79.4				114.7	VT	118.3	101.1	81.5DR	

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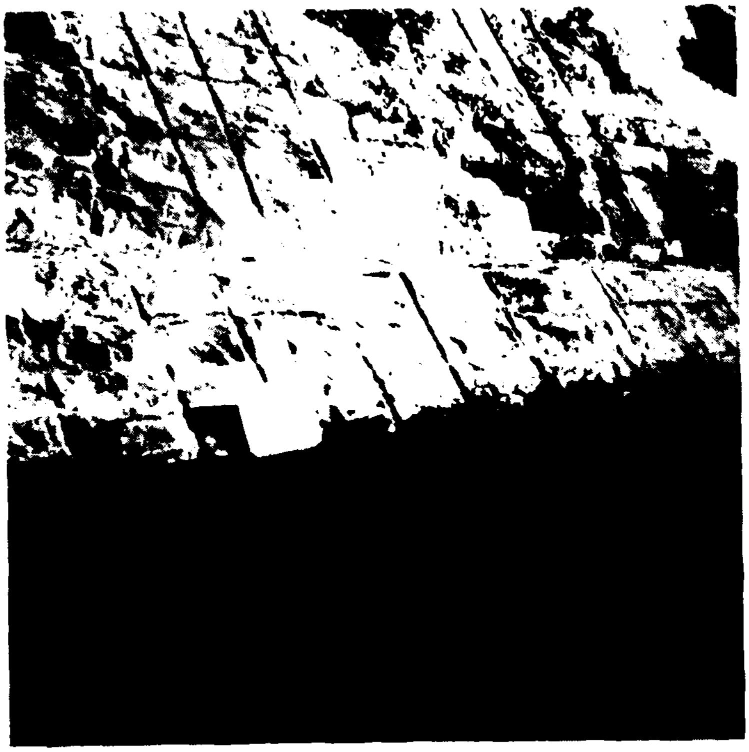
TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P-335	8- 5-83	SU	15+45	5D	623.00	12	SP	100.0	97.7	90.5	80.2	54.3	8.8	1.6	112.9	UT	118.0	100.7	73.7DR	U-R,SE P335A
P-335A	8- 6-83	SU	15+45	5D	623.00	12	SP	100.0			78.2				116.0	UT	118.8	101.6	85.7DR	RET.P-335
P-336	8- 6-83	SU	14+75	5D	625.00	12	SP	100.0			80.5				115.3	UT	117.9	100.6	86.3DR	
P-337	8- 7-83	SU	17+25	50D	620.00	18	SP	100.0	98.4	91.7	80.7	54.1	12.2	1.8	118.0	UT	117.8	100.5	101.0DR	
P-338A	8- 7-83	SU	11+70	4D	619.00	12	SP	100.0			80.8				118.3	UT	117.8	100.5	102.5DR	RET. P338
P-338	8- 7-83	SU	11+70	4D	619.00	12	SP	100.0			78.8				113.8	UT	118.6	101.3	75.3DR	U-R,SE P338A
P-339A	8- 8-83	SU	10+25	10D	618.00	12	SP	100.0			79.3				115.9	UT	118.4	101.1	87.4DR	RET. P339
P-339	8- 8-83	SU	10+26	10D	618.00	12	SP	100.0			74.7				111.0	UT	120.1	103.0	50.6DR	U-R,SE P339A
P-340	8-15-83	SU	9+60	60D	619.00	18	SP	100.0	97.3	89.6	78.9	53.0	9.9	1.4	118.9	UT	118.5	101.3	102.0DR	
P-341	8-15-83	SU	12+99	8D	628.00	12	SP	100.0			82.1				117.4	UT	117.3	99.9	100.6DR	
P-342	8-15-83	SU	15+23	5D	628.00	15	SP	100.0	96.2	88.7	79.8	56.1	13.0	2.5	113.6	UT	118.3	101.0	75.8DR	U-R,SE P342A
P-342A	8-16-83	SU	15+23	5D	626.00	12	SP	100.0			81.4				116.2	UT	117.6	100.1	93.1DR	RET. P342
P-343	8-16-83	SU	12+ 3	3D	629.00	18	SP	100.0	96.9	88.9	79.4	48.0	6.2	.8	115.3	UT	118.3	101.1	84.7DR	
P-344	8-17-83	SU	18+30	69D	626.00	12	SP	100.0			77.3				118.2	UT	119.1	101.9	95.5DR	
P-345	8-17-83	SU	9+71	27D	625.00	18	SP	100.0	98.9	91.9	81.9	56.3	11.1	1.6	118.3	UT	117.4	100.1	104.4DR	
P-346	8-18-83	SU	19+26	70D	622.00	12	SP	100.0			77.2				118.6	UT	119.2	102.0	97.0DR	
P-347	8-20-83	SU	20+33	18D	622.00	18	SP	100.0			79.9				116.4	UT	118.1	100.8	91.5DR	
P-348	8-20-83	SU	19+67	25D	627.00	18	SP	100.0	97.4	90.4	79.6	53.6	11.7	1.5	114.4	UT	118.3	101.0	80.1DR	
P-349	8-26-83	SU	20+82	30D	632.00	12	SP	100.0			75.3				117.8	UT	119.9	102.8	89.3DR	
P-350	8-26-83	SU	9+73	17D	625.00	18	SP	100.0			78.8				118.0	UT	118.6	101.3	97.0DR	
P-351	8-27-83	SU	12+99	6D	634.00	12	SP	100.0			79.6				114.9	UT	118.3	101.0	82.7DR	
P-352	8-27-83	SU	12+50	4D	630.00	18	SP	100.0			80.1				118.5	UT	118.1	100.8	102.0DR	
P-353	8-27-83	SU	15+68	5D	637.00	12	SP	100.0	98.1	91.6	80.0	51.6	8.6	1.2	112.9	UT	118.1	100.8	73.2DR	U-R,SE P353A

PROJECT-	RIVER-	STATE-	TOWN-	CONTRACT NO.-	CONTRACTOR-	DATE-

TEST	DATE	TEST TYPE	STA	OFFS (FT)	ELEV (FT)	DEPTH	CLASS	PERCENT PASSING 3/8	4	8	16	30	50	100	DRY DENSITY FIELD (PCF)	LABORATORY METHOD	MAX (PCF)	MIN (PCF)	PERC COMP OR REL DEN	COMMENTS
P-353A	8-28-83	SV	15+68	5D	637.00	12	SP	100.0			80.5				118.5	VT	117.9	100.6	102.3DR	RET. P363
P-354	8-28-83	SV	17+37	26D	636.00	12	SP	100.0			76.4				115.6	VT	119.5	102.3	79.3DR	U,NO ACT.
P-355	8-28-83	SV	20+55	30D	638.00	18	SP	100.0	98.3	89.3	77.0	48.1	7.8	1.3	112.1	VT	119.2	102.1	62.2DR	U-R,SE P355A
P-355A	8-29-83	SV	20+55	30D	638.00	18	SP	100.0			78.2				117.5	VT	118.8	101.6	93.5DR	RET. P356
P-356	9- 2-83	SV	11+90	5D	639.00	18	SP	100.0	97.7	90.0	77.7	49.8	8.4	1.7	119.9	VT	119.0	101.8	104.4DR	
P-357	9- 8-83	SV	10+33	6D	638.00	12	SP	100.0			81.7				115.6	VT	117.6	100.2	90.0DR	

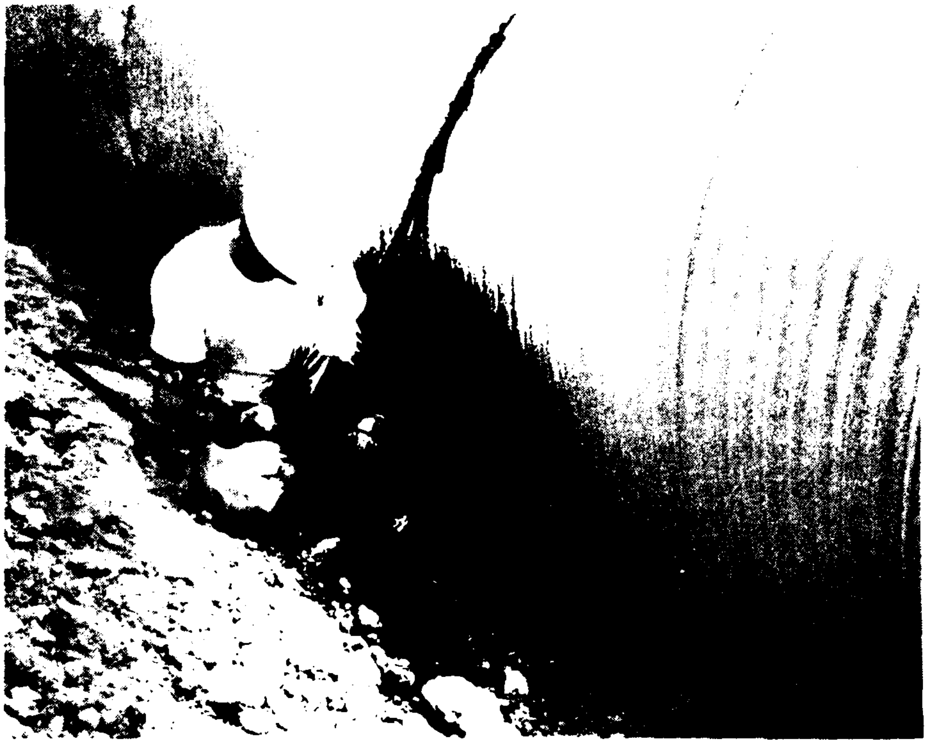
Fill placement on main dam embankment.



Compacted clay at left abutment contact.

Compacting clay near right abutment on water temperature control weir.

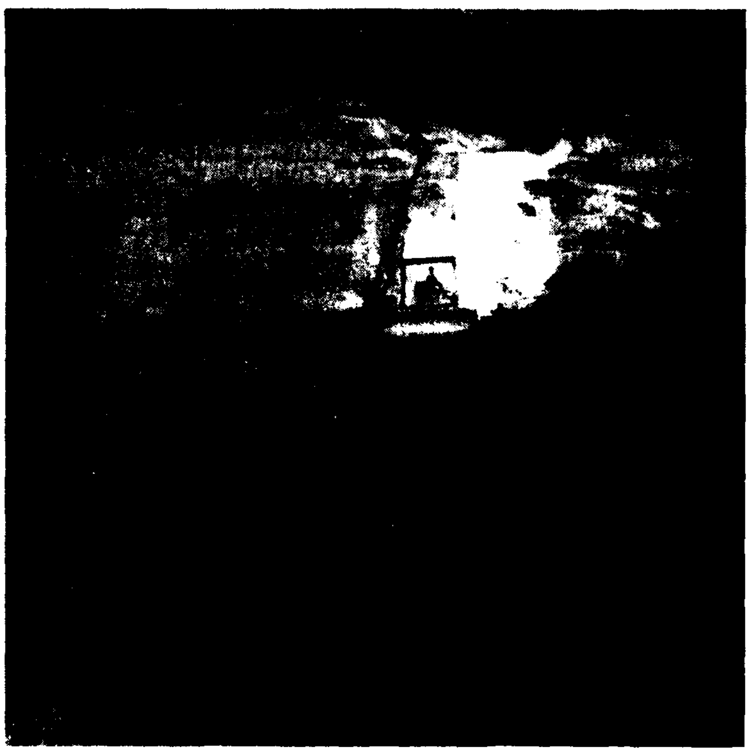
Taking [illegible] test sample in main dam embankment.



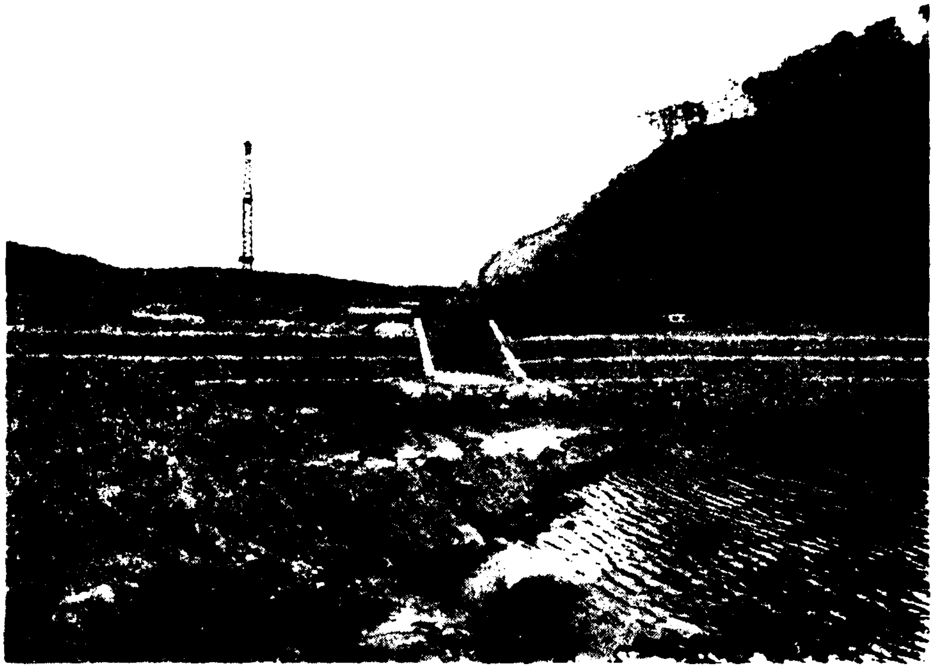
Backfilling 72-inch CMP in water temperature control weir.

Placing sand blanket.

Spreading sand chimney material.

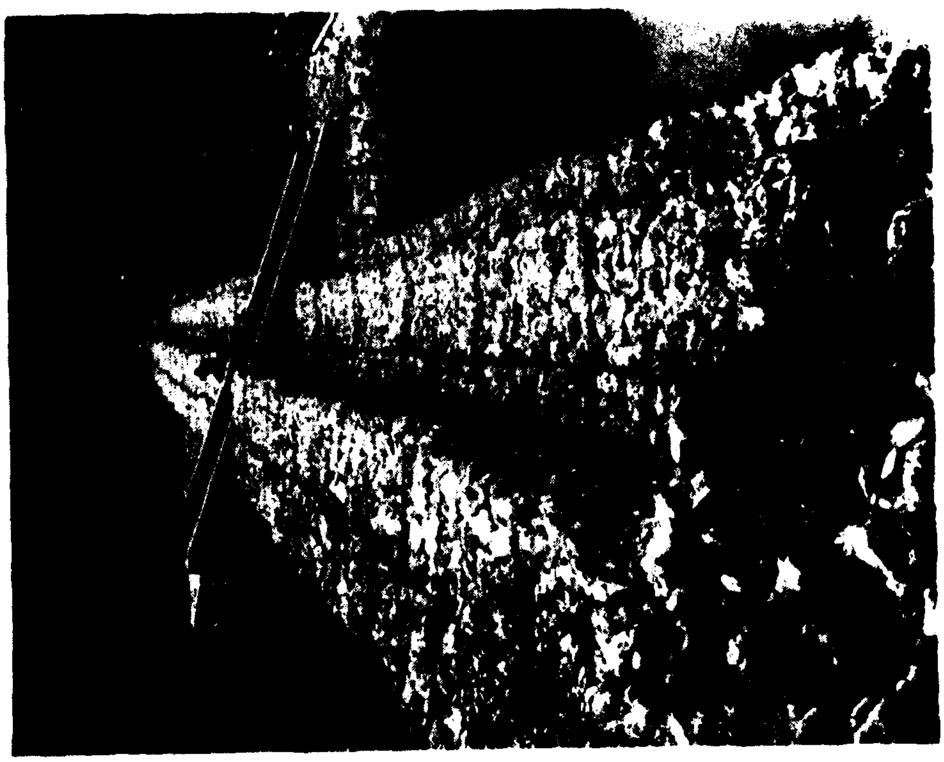


Watering and compacting sand chimney.



Gabion structure at upstream toe of water temperature control weir; 72-inch CMP in water temperature control weir.

Gabions at downstream toe of water temperature control weir.



Gabions at downstream toe of water temperature control weir.

SECTION 11

INSTRUMENTATION

A. Introduction

During the course of the main dam contract, various types of instrumentation systems were installed in the abutments, the main dam foundation, the structural concrete and the earthen embankment. The two primary functions were: (1) to detect threats to the safety of workmen and the structure during excavation and construction and (2) to monitor the integrity of the abutments, foundation, embankment and concrete after construction. The types of instrumentation hardware discussed in this Report include inclinomenters, extensometers, deflection plumb lines, electrolevel tiltmeters, concrete and soil pressure meters, thermometers, piezometers, relative movement indicators, settlement gages, v-notch weirs and trilateration survey system.

The above-mentioned devices measure vertical, horizontal and angular movements, pore pressures, quantities of seepage and pressures due to loads imposed by the concrete structure, structural backfill, embankment and impounded water. All contract instrumentation devices were installed under the supervision of Massman Construction Co.'s Instrumentation Specialist in accordance with the plans and specifications, and manufacturers' recommendations.

Instrumentation locations shown on the drawings in Volume No. 4 of this Report are general locations only. The as-installed locations are listed in tables at the end of this Section. Volume No. 3, Section 5, contains photographs pertinent to this Report.

B. Concrete Structure

1. Foundation

The foundation for the concrete structure contains 17 pairs of foundation pore pressure tips. The USBR hydraulic piezometers (PBS) and the Carlson Electrical Resistance Piezometers (CA) were installed in borings advanced into the shale or limestone foundation. These borings were spaced 5 feet apart at the same offset and elevation (refer Table No. 2). The foundation tips were installed after foundation preparation and prior to placement of the first lifts of structural concrete. In most cases, a small block of concrete was placed on the foundation and the piezometer borings were cored through the concrete block into the foundation. The pore pressure tips were installed at the base of the boring and the boring backfilled with coarse grain silica sand (Ottawa) to the approximate rock-concrete interface. A seal of bentonite or bentonitic concrete was placed in the bore hole above the Ottawa sand, usually in the structural concrete or protective slab. Pore pressure readings from each type of foundation piezometers were taken during construction and/or high river stages, e.g., July 1981 flood, and were found to be comparable. Generally, the concrete structure piezometers (PBS and CA) indicated the fluctuations of the ground water as controlled by the various stages of the dewatering operation and later reflected the tailwater and upstream pool elevations.

In Monolith D-13, four Carlson Electrical Resistance Piezometers (CA) and four Carlson Electrical Resistance Concrete Pressure Meters (CC) were installed in pairs in the structural concrete 18 inches from the downstream shale face (refer Table No. 2). Readings during construction were erratic due to concrete shrinkage, continuing concrete placement and backfilling adjacent to the monoliths.

In the abutment Monoliths D-13 and D-15, two inclinometers (DT) were installed in borings drilled from the gallery floor (refer Table No. 2). Readings during construction indicated stable foundation conditions.

In addition to the above instrumentation, six movable v-notch weirs were installed in the lower gallery gutters to monitor discharge from the upstream and downstream drains. Four of the weirs were located adjacent to the vertical powerhouse drains to the main sump, and the last two were located at the base of Monolith D-13. The position of the weirs allowed for the total flow to be divided into flow from Monolith D-1/2 through the erection bay, flow from the abutment drains (Monoliths D-13 thru D-16) and flow from the spillway and powerhouse monoliths. The total flow of the gallery drains before impoundment, as determined by weir measurement, was approximately 4 gpm at low pool elevations. The maximum flow was approximately 8 gpm with a 60-foot rise in upstream pool elevation. Since impoundment, the flow has remained relatively constant at approximately 4 gpm to 5 gpm.

During May 1977, the lower gallery (Elevation 473± feet NGVD) was flooded during a flash flood caused by a thunderstorm that knocked out the power to the electrical sump pumps in the powerhouse. As a result of this flood, the instrumentation hardware located in the cabinets in Monoliths D-5/6 thru D-9 was removed, cleaned, repaired, tested and then reinstalled. Subsequent readings indicated that all instruments were functioning properly.

In order to protect the USBR foundation piezometers from being "grouted in" during lower gallery grouting operations (refer Section 12), two distinct procedures were followed. In Monoliths D-13 and D-15, an

electric flushing pump located in the gallery instrumentation cabinets was used to maintain the fluid pressure in the USBR piezometer system slightly higher than the maximum grouting pressures. During grouting operations in Monolith D-9, powerhouse and Monolith D-5/6, the pressures recorded on the USBR piezometer system were noted and grouting was stopped temporarily if high pressures were noted on these piezometer gages. Grouting was only stopped once in the Monolith D-5/6 area. These precautions proved to be effective in that no USBR piezometers were lost as a result of the grouting operations.

Upon completion of grouting operations in the right abutment monoliths, two Telemac (CL-1) vibrating wire piezometers were installed at the Monolith D-14 concrete-rock contact (refer Table No. 2). The purpose of these piezometers was to compliment the USBR systems in Monoliths D-13 and D-15, and to serve as an additional check on the effectiveness of the grout curtain. During periods of high river stages in 1981, the readings from the upstream piezometers in Monoliths D-14 and D-15 correlated with pool fluctuations, while the downstream tips reflected a slight buildup in pore pressure. In the remaining monoliths (D-9, powerhouse and D-5/6), the most downstream piezometer tips showed the greatest degree of fluctuation and the highest piezometric elevations. These readings corresponded to the higher tailwater elevations.

2. CONCRETE

Instrumentation has been provided within the concrete structure to monitor mass concrete temperatures, strains in the wall section of the powerhouse, monolith tilting, relative monolith movement, and total differential movement. Concrete placement was essentially completed in early 1979. From that time to the beginning of reservoir filling in October 1983, the only significant structure loading was the thermal changes brought about by the changing seasons.

Fifteen Carlson electrical resistance type thermometers were embedded in the concrete structure to monitor heat buildup from hydration and long term heat dissipation. All of the thermometers were placed early in the concrete placing sequence (below elevation 503) so that heat buildup could be evaluated and changes made in the concrete operation to control that heat buildup. Data showed that no changes in the operation or placing sequence was necessary. Four of the instruments were placed in Monolith D-9 at Station 4+75, Offset 36 feet downstream (near the center of the monolith) between elevations 467 feet NGVD and 479.5 feet NGVD. Eleven instruments were embedded in monolith D-5/6 at Station 8+46. Five of these thermometers were placed at approximately the center of the monolith between elevations 467 feet NGVD and 479 feet NGVD and the other six from one to seven feet from the outside edge of the monolith both upstream and downstream at elevation 503 feet NGVD. Instrument readings were discontinued in July 1983 after the time-temperature curve had plotted as a straight line for a substantial period of time.

Strains in the thinner powerhouse wall sections caused by hydraulic loading and power generation are monitored with forty-two Microdot, CG129-6, direct burial concrete strain gages. Gages were placed between elevations 557 NGVD and 609 NGVD in the pump turbine and the erection bay areas. Three instruments were placed in an upstream to downstream range at elevation 557.5 feet NGVD across the conventional power unit. Readings are direct in micro inches per inch. However, instrument readings are very sensitive to changes in observation personnel and techniques employed in making readings.

Monoliths D-9 and the powerhouse are instrumented with plumb lines and monoliths D-5/6, powerhouse, D-9, D-13, and D-15 are instrumented with electrolevels to determine the degree of tilting (or bending) caused by hydraulic and/or thermal loading. Plumb lines consist of a large brass weight damped in oil attached to a thin piano wire anchored near the top of the concrete monolith and extending to a readout cabinet in the lower inspection gallery. Readings are made to a very high degree of accuracy, ten-thousandths of an inch, with a microscope mounted on a micrometer slide bar. The electrolevel, a precision spirit level, is installed in pairs with individual levels placed at right angles to each other to determine tilt upstream-downstream and right abutment-left abutment directions.

Relative movement between monoliths, i.e. separation along monolith joints and differential upstream-downstream movement, is determined from measurements of machined stainless steel plugs placed in a triangular pattern across all accessible monolith joints and relative movement indicators placed across monolith joints in the lower inspection gallery. Movements are measured to

thousandths of an inch with a high degree of accuracy and precision with very little sensitivity to changes in observation personnel or reading techniques. Data obtained to date shows no relative movements of consequence within the main dam structure.

Absolute or total movements of the structure are determined with a trilateration measurement system utilizing a laser beam measuring device. The control net consists of seven permanent concrete filled steel pipe monuments embedded a minimum of ten feet into bedrock. These monuments are located away from the damsite such that they will not be influenced by potential movements in the dam itself. Measurement targets, twenty-two in number, are embedded in the concrete monoliths at roadway and trunnion girder levels. The total system was completed and initial measurements were made in July 1983.

C. Downstream Walls

1. Foundation

The total foundation instrumentation network for the stilling basin walls, stilling basin, splitter wall, tailrace wall and tailrace foundations consists of 12 Carlson Electrical Resistance Piezometers (CA), 12 open-system Casagrande Porous Stone Piezometers (PCS), 5 Carlson Electrical Resistance Soil Pressure Piezometers (CE) and 1 inclinometer (DT). The open-system Casagrande Porous Stone Piezometers and the Carlson Electrical Resistance Piezometers were installed in sand backfilled core holes. Most of these installations coincided with foundation preparation operations. For those instruments installed in the stilling basin and tailrace foundations, which required offset risers and near horizontal runs, the leads were run in protective conduit placed in trenches excavated in the foundation and backfilled with concrete prior to concrete placement. Readings taken during construction from the Casagrande Piezometers generally indicated ground water conditions (during unwatering operations) or tailwater elevations.

The Carlson Electrical Resistance Piezometers and soil pressure meters beneath Monolith SB-3 were installed to a depth about 1.5 feet into the foundation with this excavation carefully backfilled with protective concrete. The Carlson Electrical Resistance Piezometers and soil pressure meters installed on the land side of Monolith SB-3 were attached to and sealed on the forms prior to concrete placement. Pervious backfill was hand placed, saturated and compacted against these instruments; at this time, the "zero" readings for computations were obtained. Two of the structure Casagrande Piezometers (PCA 11 and PCS 12) were installed in

pervious backfill adjacent to CA-22 and CA-23 as backup piezometers. Generally, the piezometers indicated ground water conditions (during unwatering operations) or tailwater elevations. The soil pressure meter readings fluctuated with seasonal temperature variance. Little or no correlation exists between the soil pressure meter readings and tailwater elevation. The inclinometer in Monolith SB-3 (DT-05) was installed in a cored hole drilled after the placement of the protective concrete. The casing was extended through each concrete lift. Readings taken during construction indicated stable foundation conditions.

Four well point piezometers (PW) were installed into the pervious backfill behind the stilling basin wall and the tailrace wall. These piezometers were installed through cased holes drilled when final grade was reached, just prior to riprap placement. These piezometers monitor the functioning of the wall drainage systems and generally indicate tailwater elevation fluctuation which is indicative of a free draining material.

2. Concrete

The main point of concern for the stilling basin, splitter, and tailrace walls is differential movement. Instrumentation was designed to monitor relative movement between wall monoliths (joint movement plugs), total movement (trilateration measurements), and tilting (electrolevel) of one monolith (SB-3) on the stilling basin wall. These instruments are identical to those discussed earlier in section 2 "Concrete" under paragraph B "Concrete Structure." All accessible monolith joints are spanned by the triangle patterned joint movement plugs for determining relative movement. Total movement is monitored with trilateration targets on all wall monoliths. Data recorded prior to reservoir filling indicates only minimal movements with no indication of areas for concern.

D. Right Abutment

The right abutment foundation instrumentation within the confines of the structure consisted of 10 40-foot long extensometers (CX), 5 Carlson Electrical Resistance Thermometers and 10 rock bolt load cells. Installation of these devices took place after rock excavation, prior to foundation preparation operations. These temporary instruments were used to monitor the integrity of the right abutment during unloading, i.e., as excavation progressed downward, and during loading, i.e., as the concrete structure and its associated backfill were completed.

The right abutment foundation instrumentation located downstream of the concrete structure consisted of multi-point piezometer installations with two or more Casagrande Porous Stone Tips in each cored hole (refer Plate No. 1). The right abutment Casagrande Piezometers were installed after completion of the dam monoliths, and after all backfill sand, clay and rip-rap were in place between the stilling basin wall and the right abutment. These piezometers were installed to check the effectiveness of the right abutment grout curtain. Piezometers Nos. PCA-10, -11 and -12 are replacement piezometers installed after mandrel testing proved that Piezometers Nos. PCA-03, -05 and -07 were not acceptable due to a blockage or restriction in the riser tubing. Readings during construction indicated the presence of a perched water table in the Chouteau Limestone with no distinguishable direct reaction to high pool elevations, thus indicating an effective grout curtain in the Chouteau Limestone. The underlying Hannibal Shale and Louisiana Limestone reflect valley piezometric levels as affected by prolonged high tailwater elevations.

E. Embankment (Prior to Diversion 24 July 1979)

The main dam embankment foundation instrumentation consisted of USBR piezometers, Telemac piezometers, Carlson piezometers, Casagrande piezometers and settlement gages. Generally, any instrumentation devices installed below the elevation of the downstream horizontal sand blanket (El. 545 feet NGVD) are considered foundation instruments.

Generally, foundation piezometer tips were installed in 3-inch diameter augered holes. The USBR foundation tips were packaged as recommended by the United States Bureau of Reclamation. The borings were then backfilled with coarse grain silica sand (Ottawa) to a point approximately 1 foot above the piezometer tip. The tip and sand backfill were then sealed in the boring with a 1 foot thick bentonite plug and the remaining hole filled with a mixture of loess and bentonite. The USBR foundation tubing was placed in trenches uniformly graded to slope upward from the most upstream tip to the permanent terminal well building. Immediately below (2 inches) and above (4 inches) the piezometer tubes, loess material was hand placed and hand compacted in the trenches. The remainder of the trench was backfilled and compacted (mechanical tamper) with embankment material. A minimum of 24 inches of cover was required before resumption of normal fill placement and compaction. Bentonite trench collars were installed just upstream of each tip location and at a point midway between each tip installation. The dimensions of the trench collars were 12 inches by 12 inches, with the width (perpendicular to the trench) extending 12 inches into the floor and side walls of the trench. These trench collars were composed of 5% bentonite and 95% loess. The composition was changed during the 1980 construction season to a 20% bentonite and 80% loess combination due to the low clay content of the loess material.

In October 1973, the El. 525 feet NGVD and El. 530 feet NGVD lines of USBR twin-tube hydraulic piezometers (PBF) at dam axis Stations 11+40 and 12+75, were installed into the Phase I embankment (refer Drawing No. 118/2). The tubing for these piezometers was initially terminated to the required test equipment (manifold and gageboard, flushing pumps, etc.) in the temporary terminal well building located on the second-stage cofferdam at Station 12+38, Offset 360 feet downstream. This arrangement was necessary in order to obtain data during foundation excavation and subsequent concrete placement for the main dam concrete. This temporary terminal well setup proved inefficient since air bubbles became trapped in the coiled tubing. The excess piezometer tubing was coiled so the leads could be extended as specified to the permanent Terminal Well No. 1. The problem was rectified by cutting the excess tubing from the Station 11+40 foundation lines (PBF-03 and -04) and by modifying the contract to construct the permanent Terminal Well No. 1 earlier than originally specified. The Station 12+75 foundation tubing was extended to the permanent terminal well during the 1976 construction season.

In December 1973, during construction of the concrete batch plant, an "H" piling was driven through four of the Station 11+40 piezometer line tubes which render Piezometers Nos. PBF-01, -02, -05 and -06 (the upstream tips) inoperable. In October 1976, the Contractor installed the replacement USBR foundation piezometer tips. Two replacement tips were installed for each tip damaged, with the exception of PBF-01, due to the uncertainty of the condition of the stored tubing when the system would eventually be made operational. The replacement line was located at Station 11+43 with one of the tips located at the specified offset for

the Station 11+40 line, and the second tip was installed 5 feet upstream of the specified offset. The required tubing for these piezometers was installed in the embankment in a trench as per the specifications. This trench extended from the upstream tip to the centerline where the tubing was stored in a concrete manhole blockout. This blockout was insulated with embankment material to prevent freezing or other damage until the concrete batch plant was removed and the tubing could be extended to the permanent Terminal Well No. 1.

In order to provide a backup system to the replacement piezometers described above and to monitor pore pressure activity in the interim, the contract was modified to install eight Carlson Electrical Resistance Piezometers at Station 11+35, Offset between 25 feet and 250 feet upstream of centerline. Four of these tips were installed at El. 525 feet NGVD and four at El. 550 feet NGVD. These Carlson piezometers were retained as part of the permanent embankment instrumentation system (refer Table No. 4).

During the installation of Piezometer No. PBF-09 (USBR, Station 12+75 line), a soft, wet zone at El. 501± feet NGVD was encountered. In order to check the condition of the Phase I fill placed within the limits of the cut-off trench, a series of eight borings was drilled to El. 501± feet NGVD. As a result of the information gained from these borings, an embankment test program was conducted by Government personnel (refer Section 5, Paragraph B, Foundation Excavation, Embankments, Phase I Fill, for more information). One phase of the test program consisted of the installation

of eight temporary embankment piezometers (EB) by Government personnel. The location of these piezometers varied from dam axis Station 12+00 to dam axis Station 14+39, with offsets varying from 65 feet upstream to 50 feet downstream. All of the EB piezometer tips were installed at El. 500 feet NGVD (refer Table No. 4). Two of these tips were open-system Casagrandes with 1-inch I.D. riser pipes; both of which started to flow water within one month after installation. The remaining six tips were Carlson Electrical Resistance piezometers. These eight piezometers were installed between 31 July 1974 and 11 October 1974. Observation of the eight piezometers continued until the area was degraded in preparation for embankment placement after diversion in the fall of 1979. The riser pipes of the Casagrande piezometers were grouted with non-shrink grout and the electrical cables cutoff at ground level.

In order for the design elements to compare the performance of three different kinds of piezometers under nearly identical conditions, the contract was modified to include a test piezometer program in the water temperature control weir embankment. In July and August 1975, 12 piezometers (TP) were installed in the water temperature control weir embankment at Station 6+75, El. 530 feet NGVD and El. 545 feet NGVD, offset approximately 10 feet upstream and 10 feet downstream of the water temperature control weir embankment. Three piezometers (one USBR hydraulic, one Carlson Electrical Resistance and one SINCO Pneumatic) were installed in each of the above locations in close proximity of each other. The USBR and Carlson piezometers gave comparable results.

The SINCO piezometer was not capable of measuring the low or negative pore pressure conditions of the water temperature control weir. This test installation was monitored until January 1979. The readout shelter and the related equipment were removed from service and no attempt was made to grout the piezometer tubes since pool levels will be at the same elevation upstream and downstream of the water temperature control weir.

The remaining type of foundation instrumentation in the embankment template includes Multiple Point Differential Settlement Gages which were installed near the foundation bedrock or foundation sands and gravels. Four of these base units and the successive intermediate measurement plates to El. 530 feet NGVD were installed by the Phase I Contractor and are described in the Phase I Foundation Report. The intermediate measurement plate for the settlement gage column at Station 11+00, Offset 25 feet upstream, El. 550 feet NGVD, was installed in August 1978 prior to diversion.

F. Embankment Instrumentation (After Diversion 24 July 1979)

One of the first instruments to be installed (10 October 1979) within the permanent embankment (diversion channel) was the settlement gage base unit at Station 16+50, Offset 25 feet upstream at El. 510.25 feet NGVD. The intermediate settlement plate unit at El. 529.26 feet NGVD was added to the column on 24 October 1979. Readings during construction have shown gradual settlement of those settlement base plates located near the foundation. Settlement ranged from ±.03 foot to ±.36 foot for these settlement base plates. Readings of the intermediate settlement plates

(elevations having nearly equal depths of fill above and below the settlement plates), have generally shown a greater amount of embankment material settlement over a shorter period of time than the base plates. Readings have shown a maximum settlement of ±1.5 feet. The settlement is attributed to loading of the embankment and is within the range of expected construction settlement.

In July 1980 after the removal of the batch plant piling to El. 530 feet NGVD, the downstream replacement USBR piezometers (Station 11+40, PBF-03 and -04) were installed at Station 11+45, Offset 80 feet and 130 feet downstream, El. 525 feet NGVD. During the installation of the downstream replacement piezometers, the upstream replacement piezometer tubing was removed from storage, tested and "run into" the permanent Terminal Well No. 1. The pore pressure readings to date from the Station 11+43/45 piezometer line substantiate the data previously obtained from the Carlson Electrical Resistance piezometers at Station 11+35, Offset 25 feet to 250 feet upstream at El. 525 feet NGVD.

During the period 17 July 1980 through 19 July 1980, the last line of USBR foundation piezometers (PBF-17 thru -29) was installed at dam axis Station 16+60 from 200 feet upstream to 222 feet downstream (refer Drawing No. 118/2). Seven of these tips were placed at the shale-embankment contact at elevations varying from El. 509.4 feet NGVD to El. 513.0 feet NGVD, and six tips were installed at El. 530.0 feet NGVD in the compacted embankment material. The piezometer tubing was placed in the excavated piezometer trench (Station 16+60) and backfilled in a manner similar to that described for the piezometer trenches at dam axis Station 11+43/45 and Station 12+75. The requirement for select material above the tubes

was reduced from 4 inches to 2 inches and the trench collars were composed of 20% bentonite and 80% select material. These piezometers were placed into operation on 25 July 1980 utilizing temporary wiring and lighting. Readings taken during construction generally indicated gradual pore pressure increases corresponding with increased embankment height for the Station 11+45 and Station 12+75 piezometer lines. The pore pressure ratios maintained an essentially stable level for the Station 11+45, Station 12+75 and Station 16+60 piezometer lines, with the Station 16+60 line generally having lower pore pressures than the Station 11+45 and Station 12+75 piezometer lines.

During August 1980, the El. 550 feet NGVD intermediate settlement gage plates for the Station 16+50 settlement gage column and the three Station 13+50 settlement gage columns were installed.

On 20 January 1981, two Casagrande piezometers (PC-27 and -28) were installed by Government forces due to a directive resulting from the April/May 1980 OCE Conference. These piezometers are located at dam axis Station 9+40, Offset 419 feet downstream near the south edge of the buried channel. The lower piezometer tip (PC-27) is located in the Louisiana Limestone at El. 456 feet NGVD with the upper tip set at El. 489 feet NGVD in the Hannibal Shale. Readings taken during construction indicate that the piezometric elevation in the Louisiana Limestone responds closely to the tailwater level while the piezometric elevation in the Hannibal Shale responds much slower and much less.

In July 1981, the third-stage cofferdam was breached adjacent to the left abutment in order to prevent an uncontrolled overtopping. As a result of the breaching operation, the two permanent terminal well buildings

were dislodged from their foundations and all USBR piezometer tubes were severed near the upstream walls of the buildings. The USBR embankment piezometers at El. 555 feet NGVD, Station 16+60, were destroyed. The five settlement gage risers were damaged, with one settlement gage column being severed near the ground surface. In additon, the settlement gage riser pipe at Station 13+50, Offset 180 feet downstream, was filled with mud and debris. The electrical cables for the Carlson embankment piezometers were twisted and braided by the water action with the outer insulation being cut and nicked in some cases. The risers for the two Casagrande (dam axis Station 9+40, Offset 419 feet downstream) were bent downstream at approximately a 30° angle.

By careful excavation and a moderate amount of hand work, all of the pairs of piezometer tubes for the foundation USBR piezometers were located, tested and identified. The tubes were identified by pumping water in a tube selected at random and observing the other tubes for a water return, then the two tubes were joined together with compression fittings. This procedure generally confirmed that each USBR foundation piezometer was operational. The embankment piezometer line at Station 16+60, El. 555 feet NGVD, was recognized as being destroyed since the severed tubing for the upstream piezometer tips was exposed in the eroded upstream bank of the sand chimney. The piezometer tubing for these tips was filled with a 1:1 grout mixture using a hand pump and then joined with compression fittings to allow the grout to "set up" before any restoration work was started in this area. All of the embankment foundation piezometers were made operational by November 1981. All damaged equipment was removed and repaired or replaced in the permanent terminal wells. The terminal wells were

relocated closer to the centerline to allow the piezometer tubing to be connected to the gages with no splices outside the terminal well buildings. Three of the piezometer tubes for the Station 11+45 piezometer line did require splicing inside Terminal Well No. 1. The present location for the center of Terminal Well No. 1 is dam axis Station 12+83.3, Offset 433.3 feet downstream (original was 450 feet downstream) and for Terminal Well No. 2 is dam axis Station 16+51.5, Offset 419 feet downstream (original was 450 feet downstream). The elevation of the base of Terminal Well No. 1 was raised to keep the entrance hatch and roof at least 2 feet above embankment grade. The elevation of the base of Terminal Well No. 2 was maintained at its new location due to the high negative pore pressures recorded from the Station 16+60, El. 530 feet NGVD, USBR line. Consequently, the upper concrete limits of Terminal Well No. 2 were extended 6 feet in order to maintain the entrance hatch and roof approximately 2 feet above embankment grade. The data obtained from the repaired piezometer systems compared favorably with the data on record prior to the flood. Damage to the remaining instrumentation hardware was repaired in the following manner:

Instrument Designation	Method of Repair
1. Carlson Piezometers	Performed circuit resistance test. Test data indicated no damage. Cuts/nicks were taped.
2. Settlement Gages	Damaged risers were replaced and plumbed. Settlement gage column at Station 13+50, Offset 180 feet downstream, was cleaned by augering to remove debris and mud. Depths checked.
3. Government Piezometers Nos. PC-27 and -28	Risers plumbed and anchored in position. The upper portion of the hole was grouted.

In January 1982, personnel from the St. Louis District Field Exploration Section drilled two 6-inch diameter borings within the embankment zone in response to an OCE/LMVD direction received during the Cannon Geotechnical Conference on 7 and 8 April 1981. The purpose of the borings was to define the pore pressure characteristics of the Hannibal Shale.

The first boring was drilled at approximate dam axis Station 16+90, Offset 385 feet upstream from the existing embankment grade to the Hannibal Shale/Louisiana Limestone contact. The shale core sample from each core run was logged and then quickly sealed in moisture-proof containers for shipment to WES for testing. The results of the WES testing program are available in the report entitled "Pore Pressure Predictions for Clarence Cannon Dam and WES Technical Report 4, Laboratory and Computational Procedures for Prediction of Pore Pressure in Clay Shale Foundations".

The second boring was drilled at approximate dam axis Station 16+70, Offset 25 feet upstream from the existing embankment grade to El. 483.5 feet NGVD within the Hannibal Shale Formation. In order to monitor the pore pressure immediately below the embankment/shale contact and near the midpoint of the formation, two Telemac (CL-1 Vibrating Wire) piezometers were installed at El. 484.5 feet NGVD (PVF-01) and El. 503.8 feet NGVD (PVF-02), respectively.

Readings taken during the 1982 construction season (28 January 1982 thru 29 November 1982) showed an increase of 86.9 feet and 7.2 feet in the piezometric elevation for Piezometers Nos. PVF-01 and PVF-02, respectively. The piezometric elevation of 617.7 feet NGVD indicated by PVF-01 on 4 October 1982 represented a piezometric elevation approximately 35 feet above the main dam embankment.

Due to questionable performance of Piezometer No. PVF-01, design elements in the St. Louis District decided to install a third vibrating wire piezometer and a companion Casagrande piezometer to verify or disprove the piezometric elevations indicated by Piezometer No. PVF-01. The additional piezometers were installed on 10 November 1982 at Station 16+81.8, Offset 35 feet upstream, with the tip elevations at 484.2 feet NGVD and 485.5 feet NGVD for PVF-03 and PVF-04T (Casagrande), respectively. After installation, these piezometers showed an increase of about 20 feet in piezometric elevation from 29 November 1982 to 4 May 1983 with an approximate embankment elevation of 592 feet NGVD. During embankment completion, the piezometric elevation increased approximately 21 additional feet from 4 May 1983 to 23 September 1983 with embankment elevation of approximately 651± feet NGVD. Based on the readings obtained during the 1983 construction season, Piezometer No. PVF-01 was removed from service.

In April 1982, a series of in-place Menard Tests was performed at selected elevations in the Phase II embankment adjacent to the north face of Monolith D-1/2. At the conclusion of the test program, Telemac piezometers (PVE-19, -20 and -21) were installed at three levels in the boring (refer Table No. 4). The following year (5 July 1983), these piezometers were supplemented by the addition of a soil pressure meter (CE-06) and Telemac piezometer (PVE-22). The soil pressure meter was installed in a chipped recess (Offset 10 feet upstream, El. 600 feet NGVD) in the face of Monolith D-1/2 so that the sensing element was flush with the face of the monolith. The companion piezometer was installed in the embankment approximately 2 feet upstation at El. 598 feet NGVD, 11 feet upstream (refer Table No. 4). The electrical leads from these

instruments were routed to the termination point for the Carlson piezometers (Station 11+35, Offset 25 feet upstream). At the conclusion of construction (23 September 1983), the soil pressure cell registered a pressure of 25 psi and a negative reading (5 feet to 6 feet) from the piezometer. The lower piezometers indicated approximately 49 feet for PVE-19, a negative 13.41 feet for PVE-20 and a negative 22.88 feet for PVE-21. These instruments were installed as recommended in the final report of the Geotechnical Safety Program conducted by Woodward and Clyde, Inc.

In conjunction with the installation of the USBR piezometers at dam axis Station 12+75 and Station 16+60, El. 570 NGVD, in early August 1982, 18 Telemac piezometers were installed at dam axis Station 12+85 and Station 16+70. The vibrating wire piezometers were added by Modification No. P00157 for the purpose of replacing the line of USBR piezometers at Station 16+60, El. 555 feet NGVD, which was destroyed by the July 1981 flood and to serve as a backup system for the USBR piezometers (foundation and embankment) at Station 12+75 and Station 16+60 that had been salvaged after the flood (refer Table No. 4 for the actual field locations and Drawing No. 119/2 for the general piezometer layout and installation procedure).

Generally, the piezometric data obtained during construction from the vibrating wire piezometers (Station 12+85 and Station 16+70) was consistent with the data from the adjacent line of USBR piezometers at Station 12+75 and Station 16+60. The only exception was the data from Piezometers Nos. PVE-01, -12 and -13 which indicated pressure higher/lower than the associated USBR piezometers. The piezometric elevation indicated by Piezometer

No. PVE-01 at embankment completion was El. 574.27 feet NGVD, whereas the associated USBR piezometer (PBF-09) indicated an elevation of 595 5 feet NGVD. The piezometric elevation for Piezometers Nos. PVE-12 and -13 was approximately 16 psi to 17 psi greater than the associated USBR piezometers (PBF-23 and -24, respectively). The piezometric pressures for the vibrating wire piezometers installed at Station 16+70, El. 555 feet NGVD, appeared reasonable based on the past performance of USBR system and embankment elevation.

During the period from late July 1983 to mid-September 1983, the Contractor installed all of the specified embankment open-system piezometers (refer Drawings Nos. 115/2 and 116/2 for the general piezometric layout and installation procedure, and Table No. 4 for the as-installed locations).

Generally, the porous stone tips were installed in uncased borings (6 inches) advanced through the embankment materials and foundation sands and gravels by a roller bit and revert. The piezometers that were specified to be set in the foundation sands and gravels at El. 475 feet NGVD or near the top of rock (shale or limestone) varied from the specified elevations because the configuration of the buried channel was not accurately plotted or considered in determining the tip locations. In general, piezometer borings were backfilled with pervious material to a point at least 1 foot above the porous stone tip, followed by 6 inches to 12 inches of bentonitic pellets with the remainder of the boring being backfilled with a bentonitic grout (grout mix: 69 pounds water, 94 pounds cement and 16 pounds bentonite). In multi-point installations, the bentonite grout was stopped at least 1 foot below the sand drainage blanket elevations. For piezometer tips set in the

foundation sands and gravels or the sand blanket, the filter material was extended through the pervious zone with the bentonitic seal placed in the embankment (refer Plate No. 2 for a typical installation detail).

During the 1982-1983 winter shutdown, two temporary embankment inclinometers (Nos. EI-10 and -11) were installed by Government forces in the upstream embankment at dam axis Station 12+50 and Station 16+00, 260 feet upstream. These inclinometers were monitored on a regular basis from the period of installation through the 1983 construction season. Analysis of the data from these inclinometers indicated stable embankment conditions.

Nine embankment inclinometers were installed by Government forces as the final embankment grade for each inclinometer was reached. Four of the embankment inclinometers were installed at dam axis Station 11+00, four at dam axis Station 12+50 and the last was installed in the upstream rock "end cone" area at dam axis Station 9+65. The inclinometers located at dam axis Station 11+00 and Station 12+50 were anchored in bedrock whereas the inclinometer located in the upstream end cone was anchored in the embankment material in order to avoid possible damage to the grounding mat for the concrete structure (refer Table No. 4). Readings have shown that Inclinometers Nos. EI-02, -03, -06, -07 and -09 which are located nearest centerline, El. 630 feet to 637 feet NGVD, have had the greatest amount of movement. The maximum amount of movement has been 1.5 inches upstream and downstream, with little, if any, lateral movement. Inclinometers Nos. EI-01, -04, -05 and -08 located 180 feet upstream and downstream at El. 607 feet NGVD have lesser amounts of movement. Maximum movement has been slightly less than 1 inch upstream and downstream, with little, if any, lateral movement. Movement is attributed to settlement of the embankment and correlates well with settlement gage readings.

G. Left Abutment

The left abutment instrumentation program consisted of the installation of 16 Casagrande Porous Stone piezometers (PCL). These piezometers were installed by Government forces during 1982-1983 and 1983-1984. The purpose of these piezometers was to check the effectiveness of the left abutment grout curtain and to monitor the left abutment sand drainage blanket (refer Table No. 5).

H. Observation Schedule

Table No. 1 outlines the frequency of readings for the various types of contract foundation instrumentation. Readings were sent to Engineering Division, Foundation and Instrumentation Section, St. Louis District, CE, for computation and evaluation, as well as being computed, plotted and evaluated in the Geology and Instrumentation Section at the project site. In addition, an effort was made to obtain additional readings during periods of high water to gather base data on how the structure and embankment instrumentation reacts under various upstream pool conditions.

OBSERVATION SCHEDULE DURING CONSTRUCTION

INSTRUMENT IDENTIFICATION	FREQUENCY
MOVEMENT MEASURING DEVICES	
(a) Relative Movement Indicators	Quarterly
(b) Settlement Gages	Monthly (1)
(c) Deflection Plumb Lines	Monthly (2)
(d) Electrolevels	Monthly
(e) Inclinometers (structure)	Quarterly/Monthly
(f) Inclinometers (embankment)	Monthly
PIEZOMETRIC MONITORING OF RIGHT AND LEFT ABUTMENT	
Porous Stone Tip (Casagrande)	Weekly
PIEZOMETRIC MONITORING OF CONCRETE STRUCTURE FOUNDATION	
(a) Well Points, Open-System	Weekly/Two Times Per Month
(b) Porous Stone Tip, Open-System	Weekly/Two Times Per Month
(c) Diaphragm, Closed-System (Carlson)	Weekly/Two Times Per Month (2)
(d) USBR, Closed-System	Weekly (2)
(e) Telemac, Vibrating Wire	Weekly (2)
PIEZOMETRIC MONITORING OF EMBANKMENT	
(a) USBR, Closed-System (Foundation)	Three Times Per Week (3)
(b) USBR, Closed-System (Embankment)	Three Times Per Week (3)
(c) Porous Stone Tip, Open-System	Weekly
(d) Diaphragm, Closed-System (Carlson)	Two Times Per Week (1), (2), (3)
(e) Telemac, Vibrating Wire	Three Times Per Week (2), (3)
PRESSURE MONITORING OF CONCRETE AND CONCRETE-SOIL INTERFACE	
(a) Soil Pressure Meter	Weekly (2)
(b) Concrete Pressure Meter	Weekly (2)

Numbers in parentheses refer to like-numbered Notes 1, 2 and 3 at the end of this table.

OBSERVATION SCHEDULE DURING CONSTRUCTION

INSTRUMENT IDENTIFICATION	FREQUENCY
SEEPAGE MEASUREMENT	
(a) V-Notch Weir (structure)	Weekly/Two Times Per Month
(b) Foundation Drains	Quarterly
TEMPERATURE MONITORING OF CONCRETE STRUCTURE	
Electric Resistance Thermometer	Monthly/Quarterly (2)

NOTES:
1. Each 5-foot lift of embankment placed.
2. Daily for two weeks, weekly for one year.
3. Weekly during winter months when little or no embankment placement occurred.
4. Initial readings of all instruments obtained at installation.
5. Scheduled reading frequency was altered for abnormal conditions and obtaining initial data base.

INSTRUMENTATION INVENTORY (CONCRETE STRUCTURE & DOWNSTREAM WALLS)

INSTRUMENT	INSTRUMENT NUMBER	MONOLITH	STATION	OFFSET	TIP OR BOT. ELEVATION (NGVD)	INITIAL READING	REMARKS
Structure Inclinometer	DT-05	SB3	3+58.75	D/S 180.00'	453.50	10-27-77	*
	DT-06	D13	2+97.50	U/S 8.75'	453.75	1-05-78	*
	DT-07	D15	2+37.50	U/S 8.75'	455.00	1-05-78	*
Piezometer; Closed System, U.S.B.R.	PBS01	D5/6	8+46.00	U/S 15.00'	462.00	12-16-74	*
	PBS02	D5/6	8+46.00	D/S 47.00'	462.00	12-16-74	*
	PBS03	D5/6	8+46.00	D/S 109.00'	462.00	12-16-74	*
	PBS04	P-H	7+05.00	U/S 35.00'	463.40	7-28-75	*
	PBS05	P-H	7+04.50	D/S 10.50'	463.10	7-28-75	*
	PBS06	P-H	7+05.00	D/S 61.00'	455.70	7-28-75	*
	PBS07	P-H	7+05.00	D/S 107.00'	463.80	7-28-75	*
	PBS08	D9	4+75.00	U/S 35.00'	463.40	8-13-75	*
	PBS09	D9	4+75.00	D/S 11.00'	461.80	8-13-75	*
	PBS10	D9	4+75.00	D/S 61.00'	462.10	8-13-75	*
	PBS11	D9	4+75.00	D/S 107.00'	462.20	8-13-75	*
	PBS12	D13	2+88.00	U/S 16.00'	484.50	2-09-76	**
	PBS13	D13	2+88.00	D/S 37.00'	489.70	2-09-76	**
	PBS14	D13	2+88.00	D/S 90.00'	495.30	2-17-76	**
	PBS15	D15	2+30.00	U/S 16.00'	542.50	5-25-76	**
	PBS16	D15	2+30.00	D/S 18.00'	546.30	5-25-76	**
	PBS17	D15	2+30.00	D/S 52.00'	549.50	5-25-76	**
Soil Pressure Meter; Carlson PE-100	CE-01	SB3	3+49.00	D/S 183.00'	538.30	8-09-76	***
	CE-02	SB3	3+43.50	D/S 182.50'	518.50	6-30-76	***
	CE-03	SB3	3+10.00	D/S 183.00'	487.00	5-15-75	**
	CE-04	SB3	3+59.00	D/S 183.00'	486.20	5-14-75	**
	CE-05	SB3	3+80.00	D/S 183.00'	486.10	5-14-75	**
	CE-06	D1/2	9+83.10	U/S 10.00'	600.00	7-06-83	****

NOTES:
* Sensing unit/Piezometer tip set in Louisana Limestone
** Sensing unit/Piezometer tip set in Hannibal Shale
*** Concrete mass with sensing element facing drainage system
**** Concrete mass with sensing element facing embankment
***** Sensing unit/Piezometer tip set in pervious backfill

TABLE NO. 2

INSTRUMENTATION INVENTORY (CONCRETE STRUCTURE & DOWNSTREAM WALLS)

INSTRUMENT	INSTRUMENT NUMBER	MONOLITH	STATION	OFFSET	TIP OR BOT. ELEVATION (NGVD)	INITIAL READING	REMARKS
Concrete Pressure	CC-01	D13	2+83.00	D/S 94.00'	509.00	3-09-76	***
Meter; Carlson	CC-02	D13	2+96.00	D/S 94.00'	509.00	3-09-76	***
	CC-04	D13	2+83.00	D/S 94.00'	516.50	3-19-76	***
	CC-05	D13	2+96.00	D/S 94.00'	516.50	3-19-76	***
Piezometer; Diaphragm	CA-01	D5/6	8+51.00	U/S 15.00'	462.00	12-16-74	*
Carlson PP-100	CA-02	D5/6	8+52.00	D/S 48.00'	462.00	1-23-75	*
	CA-03	D5/6	7+09.00	U/S 109.00'	462.00	12-16-74	*
	CA-04	P-H	7+09.00	U/S 35.00'	463.40	7-28-75	*
	CA-05	P-H	7+09.00	D/S 11.00'	463.50	7-28-75	*
	CA-06	P-H	7+09.00	D/S 61.00'	455.40	7-28-75	*
	CA-07	P-H	7+09.00	D/S 107.00'	463.90	7-28-75	*
	CA-11	B6	5+30.00	D/S 151.00'	497.00	5-27-76	**
	CA-12	B19	5+25.00	D/S 223.00'	497.00	6-23-76	**
	CA-13	D9	4+80.00	U/S 35.00'	463.40	8-13-75	*
	CA-14	D9	4+80.00	D/S 11.00'	461.70	8-13-75	*
	CA-15	D9	4+80.00	D/S 61.00'	461.90	8-13-75	*
	CA-16	D9	4+80.00	D/S 107.00'	462.20	8-13-75	*
	CA-17	B4	4+70.00	D/S 151.00'	497.50	5-27-76	**
	CA-18	B11	4+70.00	D/S 184.00'	497.00	6-09-76	**
	CA-19	B17	4+70.00	D/S 223.00'	497.00	6-23-76	**
	CA-22	SB3	3+49.00	D/S 183.00'	538.30	8-09-76	Tips Set
	CA-23	SB3	3+43.50	D/S 184.00'	518.50	6-30-76	In Concrete
	CA-24	SB3	3+10.00	D/S 183.00'	487.00	5-15-75	**
	CA-25	SB3	3+59.00	D/S 183.00'	486.20	5-15-75	**
	CA-26	SB3	3+80.00	D/S 183.00'	486.10	5-15-75	**
	CA-27	D13	2+93.00	U/S 16.00'	482.00	12-16-75	**
	CA-28	D13	2+93.00	D/S 34.00'	489.70	2-17-76	**
	CA-29	D13	2+93.00	D/S 88.00'	495.30	2-17-76	**
	CA-30	D13	2+82.00	D/S 94.00'	509.50	3-09-76	***
	CA-31	D13	2+95.00	D/S 94.00'	509.50	3-09-76	***
	CA-33	D13	2+82.00	D/S 94.00'	516.50	3-19-76	***
	CA-34	D13	2+95.00	D/S 94.00'	516.50	3-19-76	***
	CA-35	D15	2+35.00	U/S 16.00'	540.00	7-08-74	**
	CA-36	D15	2+35.00	D/S 18.00'	543.00	7-08-74	**
	CA-37	D15	2+35.00	D/S 52.00'	547.00	7-08-74	**

TABLE NO. 2

INSTRUMENTATION INVENTORY (CONCRETE STRUCTURE & DOWNSTREAM WALLS)

INSTRUMENT	INSTRUMENT NUMBER	MONOLITH	STATION	OFFSET	TIP OR BOT. ELEVATION (NGVD)	INITIAL READING	REMARKS
Piezometer; Open	PCS01	TA3	7+56.00	D/S 194.00'	462.00	11-12-74	*
System, Porous Stone	PCS02	TA6	7+56.00	D/S 296.00'	480.00	7-28-75	**
Tip, Casagrande	PCS03	TA1	6+80.00	D/S 146.00'	481.00	10-03-77	**
	PCS04	TA2	6+80.00	D/S 177.00'	487.00	10-11-77	**
	PCS05	TA3	6+80.00	D/S 218.00'	495.00	10-14-77	**
	PCS06	SP1	5+98.00	D/S 135.00'	462.00	7-28-75	*
	PCS07	SP3	5+98.00	D/S 185.00'	462.00	7-09-75	*
	PCS08	B4	4+70.00	D/S 146.00'	497.00	5-26-76	**
	PCS09	B11	4+70.00	D/S 179.00'	497.00	6-09-76	**
	PCS10	B17	4+70.00	D/S 218.00'	497.00	6-23-76	**
	PCS11	SB3	3+41.00	D/S 181.00'	518.00	10-25-77	**
	PCS12	SB3	3+48.00	D/S 181.00'	538.00	10-25-77	**
Piezometer; Diaphragm	PVW01	D14	2+61.00	U/S 17.55'	517.00	4-24-81	**
Vibrating Wire,	PVW02	D14	2+61.00	U/S 1.05'	518.90	4-24-81	**
Telemac CL-1							
Piezometer; Open	PW01	TA3	7+79.00	D/S 210.00'	488.80	8-18-83	*****
System, Well Point	PW02	TA6	7+77.00	D/S 296.00'	498.40	4-27-79	*****
	PW03	SB2	3+30.00	D/S 120.00'	508.80	10-26-77	*****
	PW04	SB4	3+30.00	D/S 214.00'	508.10	10-20-77	*****

TABLE NO. 2

TABLE NO. 3

INSTRUMENTATION INVENTORY (RIGHT ABUTMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP ELEVATION (NGVD)	INITIAL READING	REMARKS
Piezometer; Open System, Porous Stone Tip, Casagrande	PCA01	1+72.00	D/S 135.00'	475.00	6-15-78	**
	PCA02	1+72.00	D/S 135.00'	556.30	6-16-78	*
	PCA03	2+32.00	D/S 139.00'	475.00	6-24-78	**
	PCA04	2+32.00	D/S 139.00'	557.10	6-26-78	*
	PCA05	2+68.00	D/S 135.00'	460.00	8-02-78	**
	PCA06	2+68.00	D/S 135.00'	475.00	8-04-78	**
	PCA07	1+00.00	D/S 130.00'	462.50	6-09-78	***
	PCA08	1+00.00	D/S 130.00'	475.00	6-12-78	**
	PCA09	1+00.00	D/S 130.00'	555.00	6-13-78	*
	PCA10	2+32.00	D/S 130.00'	485.00	7-79	**
	PCA11	2+32.00	D/S 130.00'	460.00	7-79	***
	PCA12	1+00.00	D/S 135.00'	460.00	7-79	***
	PCA13	0+18.00	U/S 174.00'	554.80	2-03-84	*

NOTES: * Piezometer tip set in Lower Burlington Limestone
** Piezometer tip set in Hannibal Shale
*** Piezometer tip set in Louisana Limestone

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP ELEVATION	DATE INSTALLED	REMARKS
Piezometer; Closed System, U.S.B.R.	PBE-20	12+75.00	U/S 200'	549	8-25-80	*
	PBE-21	12+75.00	U/S 150'	548.9	8-25-80	*
	PBE-22	12+75.00	U/S 100'	549.2	8-25-80	*
	PBE-23	12+75.00	U/S 25'	549.1	8-26-80	*
	PBE-24	12+75.00	D/S 80'	549.5	8-26-80	*
	PBE-25	12+75.00	D/S 130'	549.7	8-26-80	*
	PBE-27	12+75.00	U/S 150'	569.9	8-06-82	*
	PBE-28	12+75.00	U/S 100'	569.6	8-07-82	*
	PBE-29	12+75.00	U/S 25'	569	8-07-82	*
	PBE-30	12+75.00	D/S 30'	569.1	8-17-82	*
	PBE-31	12+75.00	D/S 130'	568.3	8-17-82	
	PBE-33	12+75.00	U/S 150'	590.9	11-17-82	
	PBE-34	12+75.00	U/S 100'	590.5	11-17-82	
	PBE-35	12+75.00	U/S 25'	590	11-17-82	
	PBE-36	12+75.00	D/S 30'	589.5	11-16-82	
	PBE-37	12+75.00	D/S 130'	589.7	11-16-82	
	PBE-38	12+75.00	U/S 75'	610	7-13-83	
	PBE-39	12+75.00	U/S 25'	610	7-13-83	
	PBE-40	12+75.00	D/S 30'	610	7-15-83	
	PEB-47	16+16.00	U/S 150'	570.3	8-05-82	
	PBE-48	16+60.00	U/S 100'	569.9	8-05-82	
	PBE-49	16+60.00	U/S 25'	569.3	8-06-82	
	PBE-50	16+60.00	D/S 80'	568.8	8-12-82	
	PBE-52	16+60.00	U/S 150'	590.9	11-15-82	
	PBE-53	16+60.00	U/S 100'	590.7	11-15-82	
	PBE-54	16+60.00	U/S 25'	589.9	11-15-82	
	PBE-55	16+60.00	D/S 80'	589.5	11-10-82	
	PBE-56	16+60.00	U/S 75'	610	7-12-83	
	PBE-57	16+60.00	U/S 25'	610	7-12-83	
	PBE-58	16+60.00	D/S 80'	610	7-14-83	

Insert this table in place marked on previous page.

TABLE NO. 4

INSTRUMENTATION INVENTORY (EMBANKMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP ELEVATION (NGVD)	DATE INSTALLED	REMARKS
Piezometer; Closed System, U.S.B.R.	PBF-01	11+45.00	U/S 105.00'	525.00	10-04-76	*
	PBF-02	11+45.00	U/S 25.00'	525.00	10-04-76	*
	PBF-03	11+45.00	D/S 80.00'	525.00	7-11-80	*
	PBF-04	11+45.00	D/S 130.00'	525.00	7-11-80	*
	PBF-05	11+45.00	U/S 250.00'	525.00	9-03-76	*
	PBF-06	11+45.00	U/S 200.00'	525.00	9-03-76	*
	PBF-07	12+75.00	U/S 250.00'	530.00	10-16-73	*
	PBF-08	12+75.00	U/S 200.00'	530.00	10-17-73	*
	PBF-09	12+75.00	CENTERLINE	475.00	10-19-73	*
	PBF-10	12+75.00	D/S 2.00'	505.00	10-19-73	*
	PBF-11	12+75.00	U/S 100.00'	530.00	10-17-73	*
	PBF-12	12+75.00	D/S 25.00'	530.00	10-19-73	*
	PBF-13	12+75.00	D/S 80.00'	530.00	10-19-73	*
	PBF-14	12+75.00	D/S 130.00'	530.00	10-20-73	*
	PBF-15	12+75.00	D/S 240.00'	530.00	10-20-73	*
	PBF-16	12+75.00	D/S 350.00'	530.00	10-20-73	*
	PBB-02	11+45.00	U/S 30.00'	525.00	10-04-76	*Replacement
	PBB-05	11+45.00	U/S 245.00'	525.00	9-03-76	*Replacement
	PBB-06	11+45.00	U/S 195.00'	525.00	9-03-76	*Replacement
	PBF-17	16+60.00	U/S 78.00'	511.40	7-18-80	**
	PBF-18	16+60.00	U/S 3.00'	512.40	7-18-80	**
	PBF-19	16+60.00	D/S 47.00'	509.40	7-18-80	**
	PBF-20	16+60.00	D/S 130.00'	510.40	7-18-80	**
	PBF-21	16+60.00	D/S 222.00'	513.00	7-19-80	**
	PBF-22	16+60.00	U/S 100.00'	530.00	7-18-80	**
	PBF-23	16+60.00	U/S 25.00'	530.00	7-18-80	**
	PBF-24	16+60.00	D/S 80.00'	530.00	7-18-80	**
	PBF-25	16+60.00	D/S 180.00'	530.00	7-19-80	**
	PBF-26	16+60.00	U/S 196.00'	512.80	7-17-80	**
	PBF-27	16+60.00	U/S 153.00'	509.90	7-17-80	**
	PBF-28	16+60.00	U/S 200.00'	530.00	7-17-80	**
	PBF-29	16+60.00	U/S 150.00'	530.00	7-17-80	**
Piezometer; Diaphragm, Vibrating Wire, Telemac CL-1	PVF-01	16+70.00	U/S 25.00'	484.50	1-14-82	***
	PVF-02	16+70.00	U/S 25.00'	503.80	1-19-82	***
	PVF-03	[illegible]	U/S 31.00'	484.20	11-11-82	***

* See Sheet 1a of 5

INSTRUMENTATION INVENTORY (EMBANKMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP ELEVATION (NGVD)	DATE INSTALLED	REMARKS
Piezometer, Open System, Porous Stone Tip, Casagrande	PVF-04T	16+81.80	U/S 31.00'	485.50	11-11-82	*** This was a companion to PVF-03.
Piezometer; Diaphragm, Vibrating Wire, Telemac CL-1	PVE-01	12+85.00	D/S 20.00'	475.90	8-09-82	*
	PVE-02	12+85.00	U/S 25.00'	505.00	8-05-82	*
	PVE-03	12+85.00	D/S 24.00'	505.50	8-11-82	*
	PVE-04	12+85.00	U/S 100.00'	530.10	8-04-82	*
	PVE-05	12+85.00	U/S 25.00'	530.20	8-05-82	*
	PVE-06	12+85.00	U/S 150.00'	550.20	8-04-82	*
	PVE-07	12+85.00	U/S 100.00'	550.30	8-05-82	*
	PVE-08	12+85.00	U/S 25.00'	550.10	8-06-82	*
	PVE-09	12+85.00	D/S 80.00'	550.20	8-11-82	*
	PVE-10	12+85.00	D/S 130.00'	550.10	8-11-82	*
	PVE-11	16+70.00	U/S 100.00'	530.40	8-03-82	*
	PVE-12	16+70.00	U/S 35.00'	530.10	8-04-82	*
	PVE-13	16+70.00	D/S 80.00'	530.20	8-06-82	*
	PVE-14	16+70.00	D/S 180.00'	532.20	8-09-82	*
	PVE-15	16+70.00	U/S 150.00'	554.70	8-03-82	*
	PVE-16	16+70.00	U/S 100.00'	555.60	8-04-82	*
	PVE-17	16+70.00	U/S 35.00'	555.90	8-04-82	*
	PVE-18	16+70.00	D/S 75.00'	555.40	8-06-82	*
	PVE-19	9+90.25	U/S 10.00'	488.10	4-22-82	*
	PVE-20	9+90.25	U/S 10.00'	515.30	4-23-82	*
	PVE-21	9+90.25	U/S 10.00'	550.50	4-27-82	*
	PVE-22	9+85.00	U/S 11.00'	598.00	7-05-83	*

INSTRUMENTATION INVENTORY (EMBANKMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP ELEVATION (NGVD)	DATE INSTALLED	REMARKS
Piezometer; Open	PC-02	11+60.00	U/S 100.00'	512.60	8-16-83	****
System, Porous Stone	PC-03	11+60.00	D/S 130.00'	473.00	7-29-83	****
Tip, Casagrande	PC-04	11+60.00	D/S 300.00'	468.30	7-31-83	****
	PC-05	11+60.00	D/S 130.00'	543.20	7-29-83	*****
	PC-06	11+60.00	D/S 300.00'	541.60	7-31-83	*****
	PC-08	13+40.00	U/S 100.00'	471.60	8-05-83	****
	PC-09	13+40.00	D/S 130.00'	473.30	7-27-83	****
	PC-10	13+40.00	D/S 350.00'	489.50	8-02-83	****
	PC-11	13+40.00	D/S 130.00'	543.40	7-28-83	*****
	PC-12	13+40.00	D/S 350.00'	540.50	8-02-83	*****
	PC-13	16+40.00	D/S 80.00'	542.60	8-17-83	*****
	PC-14	16+40.00	D/S 197.00'	544.00	7-26-83	*****
	PC-20	10+50.00	U/S 100.00'	511.20	8-15-83	****
	PC-21	10+50.00	D/S 130.00'	511.20	8-03-83	****
	PC-22	10+50.00	D/S 300.00'	504.30	8-01-83	****
	PC-23	10+50.00	D/S 130.00'	543.50	8-03-83	*****
	PC-24	10+50.00	D/S 300.00'	542.90	9-12-83	*****
	PC-27	9+40.00	D/S 419.00'	456.00	1-20-81	******
	PC-28	9+40.00	D/S 419.00'	489.00	1-20-81	***

NOTES: PC-01, 07, 19 and PC-25 and 26, were deleted by Modification Nos. and . PC-15 thru 18 were deleted by Modification No. P00157.

* Piezometer tip set in embankment material
** Piezometer tip set in shale/embankment contact
*** Piezometer tip set in Hannibal Shale
**** Piezometer tip set in Foundation sands and gravels
***** Piezometer tip set in sand drain
****** Piezometer tip set in Louisana Limestone

INSTRUMENTATION INVENTORY (EMBANKMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	PLATE ELEVATION (NGVD)	DATE INSTALLED	REMARKS
Subsurface Settlement Gage	SG-01	11+00.00	U/S 25.00'	506.99	11-13-71	
	SG-02	11+00.00	U/S 25.00'	529.91	5-23-72	
	SG-03	11+00.00	U/S 25.00'	549.62	8-16-78	
	SG-04	11+00.00	U/S 25.00'	569.23	7-07-82	
	SG-05	11+00.00	U/S 25.00'	589.80	5-09-83	
	SG-06	11+00.00	U/S 25.00'	641.87	9-10-83	
	SG-07	13+50.00	U/S 25.00'	466.14	10-31-71	
	SG-08	13+50.00	U/S 25.00'	474.99	11-03-71	
	SG-09	13+50.00	U/S 25.00'	484.92	11-05-71	
	SG-10	13+50.00	U/S 25.00'	504.97	11-11-71	
	SG-11	13+50.00	D/S 80.00'	505.04	11-11-71	
	SG-12	13+50.00	U/S 25.00'	529.87	5-23-72	
	SG-13	13+50.00	D/S 80.00'	529.88	5-23-72	
	SG-14	13+50.00	D/S 180.00'	530.00	6-23-72	
	SG-15	13+50.00	U/S 25.00'	549.33	8-11-80	
	SG-16	13+50.00	D/S 80.00'	549.39	8-11-80	
	SG-17	13+50.00	D/S 180.00'	549.56	8-12-80	
	SG-18	13+50.00	U/S 25.00'	570.98	7-31-82	
	SG-19	13+50.00	D/S 80.00'	569.12	8-20-82	
	SG-20	13+50.00	D/S 180.00'	568.28	8-20-82	
	SG-21	13+50.00	U/S 25.00'	589.40	5-09-83	
	SG-22	13+50.00	U/S 25.00'	641.32	9-08-83	
	SG-23	16+50.00	U/S 25.00'	510.25	10-10-79	
	SG-24	16+50.00	U/S 25.00'	529.26	10-24-79	
	SG-25	16+50.00	U/S 25.00'	550.13	8-28-80	
	SG-26	16+50.00	U/S 25.00'	569.70	7-31-82	
	SG-27	16+50.00	U/S 25.00'	590.28	5-17-83	
	SG-28	16+50.00	U/S 25.00'	642.60	9-08-83	

NOTE: Elevations are installed plate elevations taken on the date of installation.

TABLE NO. 4

INSTRUMENTATION INVENTORY (EMBANKMENT)

INSTRUMENT	INSTRUMENT NUMBER	STATION	OFFSET	TIP OR ANCHOR ELEVATION (NGVD)	DATE INSTALLED	REMARKS
Embankment Inclinometer See Note 1 and 2	EI-01	11+00.00	U/S 190.00'	490.00	8-18-83	**
	EI-02	11+00.00	U/S 75.00'	490.00	8-30-83	**
	EI-03	11+00.00	D/S 100.00'	490.00	8-18-83	**
	EI-04	11+00.00	D/S 180.00'	490.00	8-18-83	**
	EI-05	12+50.00	U/S 190.00'	455.00	8-18-83	***
	EI-06	12+50.00	U/S 75.00'	453.00	8-30-83	***
	EI-07	12+50.00	D/S 100.00'	455.00	9-01-83	***
	EI-08	12+50.00	D/S 180.00'	455.00	8-18-83	***
	EI-09	9+65.00	U/S 80.00'	550.00	8-31-83	*
	EI-10	12+50.00	U/S 260.00'	470.00	4-20-83	***
	EI-11	16+00.00	U/S 260.00'	500.00	4-20-83	**
Piezometer; Diaphragm, Carlson PP-100	CA-38	11+35.00	U/S 250.00'	525.00	8-29-78	*
	CA-39	11+35.00	U/S 250.00'	550.00	8-29-78	*
	CA-40	11+35.00	U/S 200.00'	525.00	8-29-78	*
	CA-41	11+35.00	U/S 200.00'	550.00	8-29-78	*
	CA-42	11+35.00	U/S 105.00'	525.20	8-28-78	*
	CA-43	11+35.00	U/S 100.00'	550.00	8-29-78	*
	CA-44	11+35.00	U/S 25.00'	525.00	8-25-78	*
	CA-45	11+35.00	U/S 25.00'	550.00	8-29-78	*
Piezometer; Diaphragm, Carlson, Temporary	EB-09	12+00.00	Centerline	500.00	8-74	*
	EB-11	14+30.00	Centerline	500.00	8-07-74	*
	EB-12	13+30.00	D/S 50.00'	500.00	9-04-74	*
	EB-16	13+70.00	U/S 50.00'	500.00	9-05-74	*
	EB-17	14+39.00	U/S 47.00'	500.00	10-09-74	*
	EB-21	14+21.00	D/S 50.00'	500.00	10-11-74	*
Piezometer; Open System, Porous Stone Tip, Casagrande, Temporary	EB-10	13+00.00	Centerline	500.00	7-31-74	*
	EB-13	13+00.00	U/S 65.00'	500.00	8-29-74	*

NOTES:
1. Dates given for inclinometers reflect date of initial reading.
2. EI-10 and 11 were temporary inclinometers.

* Sensing unit/Piezometer tip set/anchored in embankment material
** Sensing unit/Piezometer tip set/anchored in Hannibal Shale
*** Sensing unit/Piezometer tip set/anchored in Louisiana Limestone

INSTRUMENTATION INVENTORY (LEFT ABUTMENT)

INSTRUMENT NAME	INSTRUMENT NUMBER	LOCATION			FIRST COMPLETE READING	(ROCK TYPE) TIP SET IN
		STATION	OFFSET	ELEVATION (NGVD)		
Piezometer; Open	PCL-01	19+90.00	U/S 20'			
System, Porous Stone	PCL-02	19+90.00	D/S 20'			
Tip, Casagrande	PCL-03	20+70.00	U/S 20'			
	PCL-04	20+70.00	D/S 20'			
	PCL-05	25+00.40	U/S 31'	548.0		Lower Burlington
	PCL-06	24+98.80	D/S 30'	551.8		Lower Burlington
	PCL-07	31+03.50	D/S 32.5'	552.0		Lower Burlington
	PCL-08	19+96.50	U/S 81.6'	463.2		Louisiana Limestone
	PCL-09	19+96.50	U/S 81.6'	552.7		Lower Burlington
	PCL-10	20+63.00	D/S 86.8'	463.3		Louisiana Limestone
	PCL-11	20+63.00	D/S 86.6'	564.9		Lower Burlington
	PCL-12	20+25.50	D/S 303.38'	462.9 (BOH)		Open Hole, No Tip
	PCL-13	18+75.00	U/S 20'			
	PCL-14	18+75.00	D/S 20'			
	PCL-15	18+75.00	D/S 25'			Sand Drain
	PCL-16	18+75.00	D/S 85'			

NOTE: PCL-05 thru PCL-12 and PCL-16 are installed, actual field locations. The actual locations of the remainder may differ--the tip elevations are not included for this reason. Locations for the remaining piezometers are from the contract documents. These piezometers were not installed prior to completion of this Report.

TABLE NO. 5

PIEZOMETER: OPEN SYSTEM (POROUS STONE TIP-CASAGRANDE)
MULTIPLE INSTALLATION DETAIL, ABUTMENT

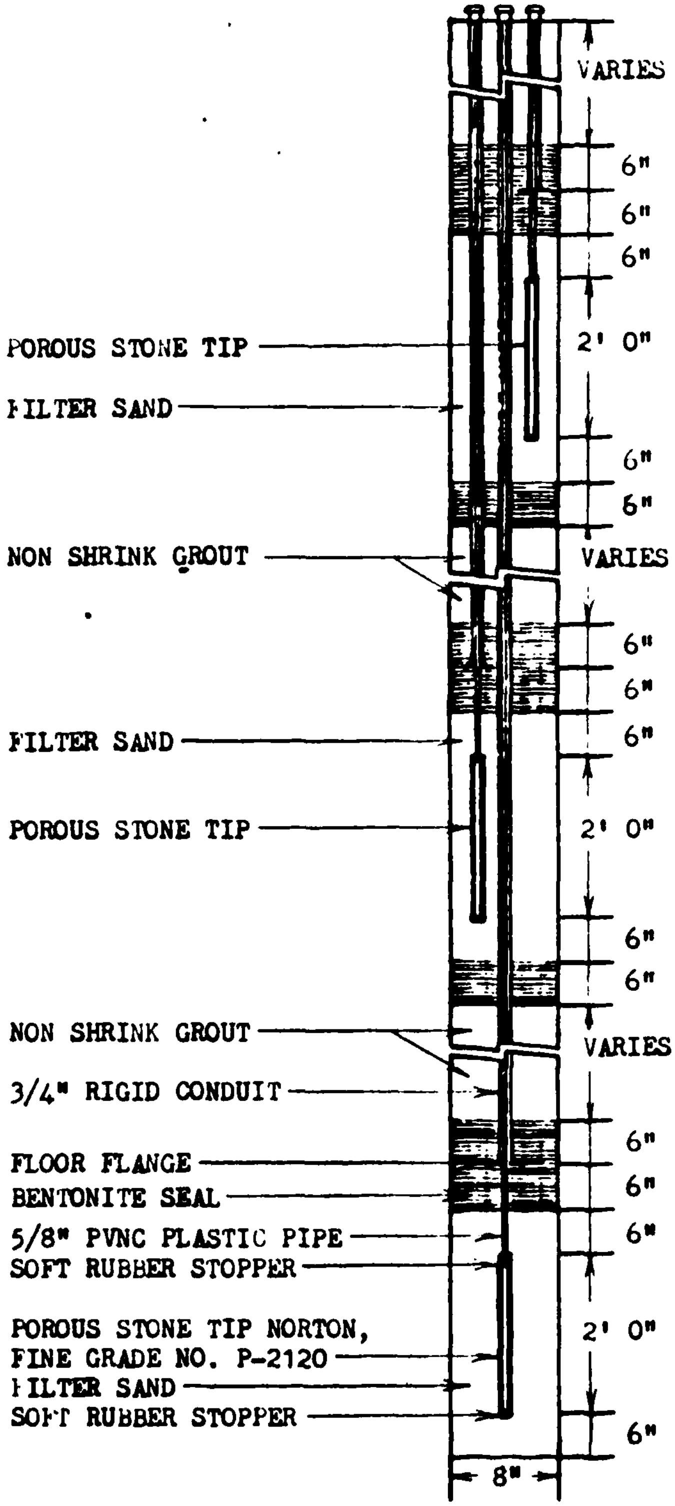


PLATE NO. 1

PIEZOMETER: OPEN SYSTEM (POROUS STONE TIP-CASAGRANDE)
MULTIPLE INSTALLATION DETAIL, EMBANKMENT

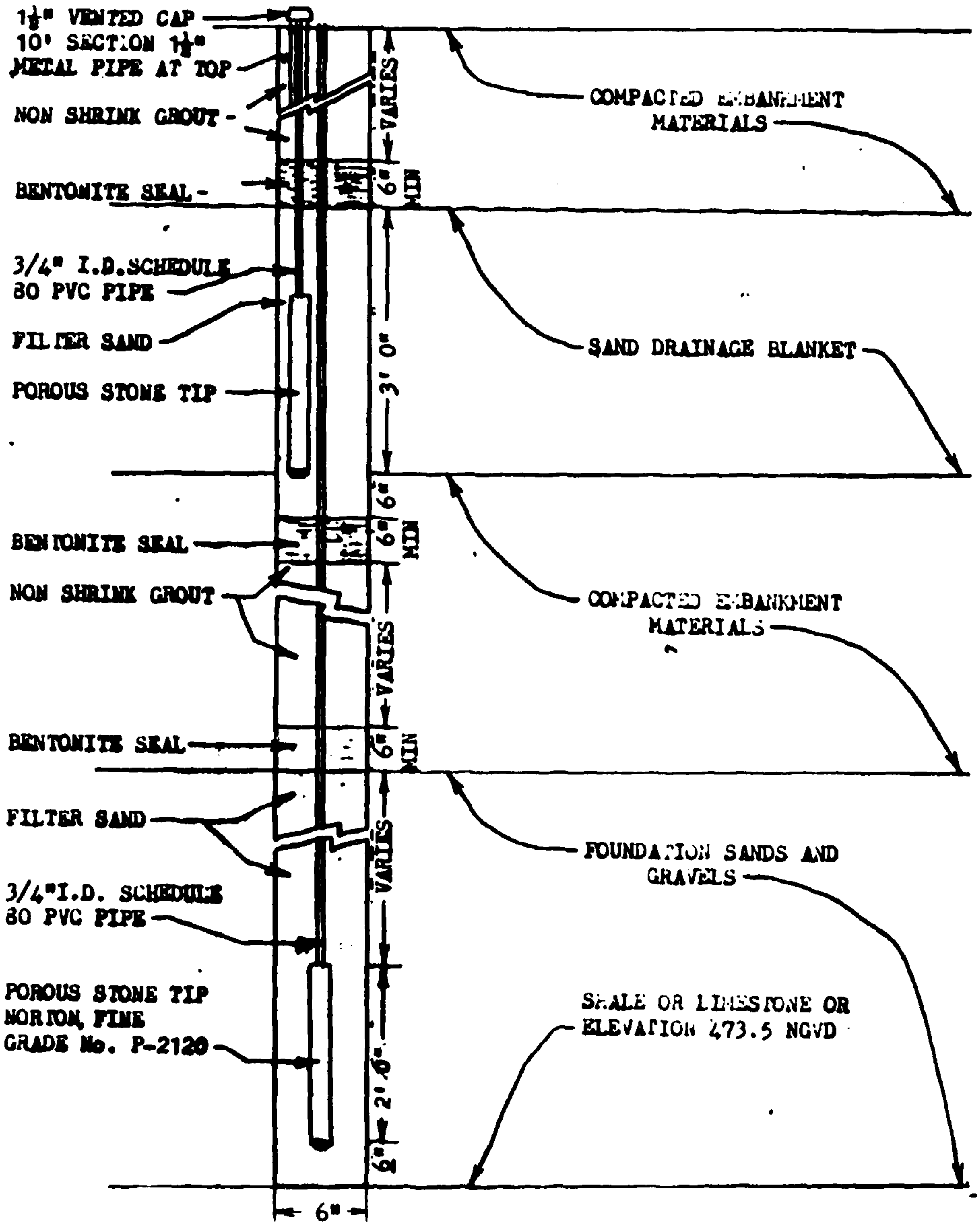


PLATE NO. 2

SECTION 12

DRILLING AND GROUTING

A. Main Dam Contract

1. Right Abutment Consolidation Grouting

The principal equipment mobilized during the summer of 1977 by Continental Drilling Co. of Madrea, California, for the entire foundation drilling and grouting program consisted of the following:

Three (3) Gardner-Denver Pumps (6 x 3 x 6)
Two (2) 1050 cfm Air Compressors
Two (2) Grout Plans with Moyno Pumps
One (1) Generator
Six (6) C.P. 65 Drills with Necessary Hoses and Tools
Water Pressure Testing Equipment
One (1) Environmental Control Sump Pump
Scaffolding and Platforms
One (1) Water Tank (6 x 5 x 7), 800 Gallon
1,400 Lin.Ft. of 2-Inch Air and Grout Line
1,000 Lin. Ft. of 2-Inch Waste Water Discharge Line
600 Lin.Ft. of 4-Inch Air Line Along Grout Line
4,400 Lin.Ft. of Air and Water Pipe Line
One (1) Cement Storage Trailer
One (1) Fuel Supply Tank

The first order of work performed by Continental Drilling Co. was the drilling and grouting of the right abutment consolidation grout holes located downstream of Monolith D-15. The Contractor started drilling on 18 July 1977 and concluded all grouting and backfilling operations by 19 August 1977 (refer Drawing No. 138/2 for general location).

The purpose of the consolidation grout program was to strengthen the highly fractured and jointed Chouteau Formation. The location of the grout holes varied from Station 2+40 to Station 2+20 and offset from 63 feet to 138 feet downstream of the dam axis. The grout holes were on 10-foot centers and drilled vertically from El. 565 feet NGVD to El. 550 feet NGVD (refer Drawing No. 139/2 for the as-drilled location of the consolidation grout holes). As per specifications, consolidation grouting could not commence until the concrete placement of Monolith D-15 had reached El. 580 feet NGVD.

The Contractor drilled (jack hammer) and grouted in 2-inch diameter by 30-inch long (1 foot stickup) black steel pipe for each grout hole in order to mount the C.P. 65 drill for the drilling of EX grout holes. Upon completion of drilling of each hole, the hole was thoroughly washed by circulating clear drill water from the bottom of the hole. The circulation continued until the drill water cleared.

The grout holes were pressure tested and grouted at total pressures not to exceed 1/2-pound per foot of vertical depth as per the grouting specifications. The maximum gage pressure used for grouting was 6 psig. The grout holes were pressure tested and grouted with a mechanical packer set into the 2-inch diameter steel pipe. Each grout hole was washed and pressure tested with clean water under continuous pressure up to the required testing pressure. The normal length of each pressure test was generally 10 minutes, whereas the time of washing was based upon the amount and color of discharge from adjacent grout holes or fractures in the abutment face (refer Table No. 1 which gives the time of washing and the pressure test data for each grout hole).

A neat grout, consisting of water and Type II cement, was used for all consolidation grouting. Grout mixes were in the proportions directed by the Contracting Officer's Representative who, from time to time, changed the mixes due to the behavior of the grout flow into the hole. The selection of the initial grout mix was based upon the results of the pressure test and the initial grout mix generally utilized was a water/cement ratio of 3:1, with subsequent grout mixes ranging from 6:1 to 0.6:1. When grout leaks developed on the abutment face, the Contractor plugged the leaks with oakum. The grouting of any hole was considered complete when the rate of injection was 1/2 cubic foot or less for a 5 minute period. On occasion, grouting operations were suspended due to leakage for 30 minutes to 1 hour in order to allow the injected grout to obtain its initial set. A total of 284 bags of cement was used in pressure grouting and of this, 25 bags were estimated to be lost due to leakage. All grout holes were backfilled to the ground surface with a grout ranging from a water/cement ratio of 1:1 or thicker. The casings were then cut flush with the shotcrete and the holes backfilled again. A total of 162 bags of cement was used for backfilling (refer Drawing No. 139/2 which shows the grout take for each consolidation grout hole).

MAIN DAM CONTRACT

CONSOLIDATION DRILLING AND GROUTING DOWNSTREAM OF MONOLITH D-15

BORING DESIGNATION Station	Offset	DEPTH	DURATION OF WASHING	GAGE PRESSURE (PSIG)	TAKE (GPM)
2+20	63' D/S	0-45	40 Min.	10	0
	73' D/S	0-46	No Wash	10	0
	83' D/S	0-40	82 Min.	10	0
	88' D/S	0-40	40 Min.	17	0
	93' D/S	0-46	39 Min.	0	35.4
	103' D/S	0-46	29 Min.	10	10.7
	113' D/S	0-45	14 Min.	10	0
	123' D/S	0-46	17 Min.		0
	133' D/S	0-45	36 Min.	17	7.4
2+30	63' D/S	0-45	28 Min.	10	0
	73' D/S	0-50	25 Min.	10	32.6
	83' D/S	0-50	45 Min.	10	12.7
	93' D/S	0-30	38 Min.	10	35.3
	103' D/S	0-35	38 Min.	10	32.7
	113' D/S	0-36	40 Min.	10	20.1
	123' D/S	0-31	152 Min.	10	29.6
	133' D/S	0-35	50 Min.	10	32.6
2+40	63' D/S	0-25	20 Min.	10	22.6
	68' D/S	0-24	20 Min.	8	0
	73' D/S	0-24	20 Min.	10	25.1
	78' D/S	0-24	30 Min.	7	0
	83' D/S	0-25	22 Min.	10	21.8
	93' D/S	0-25	51 Min.	10	27.6
	103' D/S	0-25	45 Min.	10	27.2
	113' D/S	0-24	33 Min.	10	0
	118' D/S	0-20	11 Min.	10	9
	123' D/S	0-24	37 Min.	10	23.25
	133' D/S	0-25	25 Min.	10	31.5
	138' D/S	0-24	10 Min.	10	0

TABLE NO. 1

2. Monoliths D-16 and D-17 Curtain Grouting

The second order of work performed by Continental Drilling Co. was the establishment of a continuous single-line grout curtain extending from the south end of Monolith D-15 to the south end of Monolith D-17. The location, angle and orientation of each as-drilled grout hole are shown on Drawings Nos. 140/2, 141/2 and 142/2. On 2 August 1977, the Contractor started drilling the Monolith D-17 grout holes and concluded all pressure testing and pressure grouting operations by 22 November 1977. On 23 August 1977, Contractor personnel began laying water and air lines to the lower gallery of Monolith D-16. On 3 October 1977, all pressure testing and pressure grouting operations were complete.

The Contractor drilled and grouted in 2-inch diameter black steel pipe of varying lengths for each monolithic grout hole in order to mount the C.P. 65 drill for the drilling of the EX grout holes. Each monolith was considered as a separate section in which the Contractor generally drilled all grout holes prior to pressure testing. The grout holes were drilled to a depth of 1 foot beyond the Chouteau/Hannibal contact (El. 553± feet NGVD). Upon completing the drilling of each grout hole, each hole was thoroughly washed by circulating clear drill water from the bottom of the boring until all cuttings were removed. As per the specifications, if there was no drill water return, the Gardner-Denver pump was run at maximum capacity (approximately 100 gpm) for 5 minutes. Due to the small boring diameter, the Contractor experienced considerable problems with caving during drilling and after the completion of Monolith D-17 pressure testing.

Generally, each monolithic grout hole was pressure tested by combination of single and double packers. The bottom 5± feet of each grout hole would be tested with a single pneumatic or leather cup packer, whereas the remainder of the grout hole was tested in 5-foot intervals with a double packer. A total pressure (gage plus hydrostatic) of 1 psi per foot of vertical rock cover was used for all pressure testing. The normal duration of each pressure test was 5 minutes unless a significant take occurred and then the test was expanded to 10 minutes. In addition, the "take" interval was pressure washed for a period of up to 1 hour to remove the joint clay filling encountered during drilling. Since each monolith was considered as a separate section, all grout holes were pressure tested prior to grouting.

A neat grout consisting of Type II cement and water or Type II cement, fluidifier (Interplast-N) and water was used for all monolithic grouting. Fluidifier generally was used only in the initial grout mixes. Grout mixes were in proportions directed by the Contracting Officer's Representative who, from time to time, changed the mixes due to the behavior of the grout flow in the hole. The selection of the initial grout mix was based upon the results of the pressure test and the initial range of grout mixes varied from 6:1 to 3:1 with subsequent grout mixes ranging from 2:1 to 1:1. Generally, the grout holes in each monolith were "hooked" in numerical order starting with the lowest numbered hole. The grouting of any hole was considered complete when the rate of injection was 0.1 cfm. Upon completion of pressure grouting operations, all grout holes were backfilled with 0.8:1 grout and the 2-inch pipe was cut flush with the concrete.

Due to the monolithic grout hole spacing, at least six grout holes (D17-3, -5, -6 and -7, and D16-2 and -4) were initially grouted by communication. Due to the uncertainty of the obstruction (number of clay seams) while setting the packer to the required stop, the grout hole would be flushed or redrilled and then pressure grouted.

Predetermined elevations were not used to delineate zones for future monolithic grout packer settings. Generally, the elevation of the grout packer setting was based upon the elevation of pressure test data which allowed grout to be injected under greater pressures.

All monolithic grouting was accomplished from the Contractor's grout plant located in the future south overlook parking lot. Communication between Government and Contractor personnel for Monolith D-16 grouting was accomplished by a battery-operated telephone. Due to the difference in elevation between the grout plant and the Monolith D-16 grout holes, considerable caution was exercised during grouting. In addition, due to the considerable length of grout lines, the change of grout mixes was cumbersome.

Closure of the Monolith D-16 grout curtain was accomplished by the drilling of four split-spaced grout holes, whereas in Monolith D-17, no higher order grout holes were drilled. Since the Government was unable to reach agreement with the Contractor on an equitable price for additional drilling and grouting work to be added under Corps File 4U (Modification No. P00085), the remainder of foundation drilling and grouting work in Monoliths D-16 and D-17 was terminated.

3. Right Abutment Grout Curtain

Contractual work performed by Continental Drilling Co. for the development of the right abutment grout curtain began on 23 August 1977 and, by 19 June 1978, all drilling, pressure testing and pressure grouting of the primary grout holes were essentially complete. The Contractor shutdown all foundation drilling and grouting operations during the winter months from 2 December 1977 to 27 March 1978 and for the period 17 May 1978 through 30 May 1978 due to Operating Engineers' strike. The stationing, angle and orientation of the primary grout holes are found on Drawings Nos. 143/2, 144/2 and 145/2.

As per the contract specifications, the right abutment grout curtain was subdivided into 100-foot sections in which grouting operations were not permitted at the same time as grout hole drilling. Two-inch diameter black steel pipe was set by the Contractor through the overburden and grouted 1 foot into firm bedrock. Generally, the top of firm bedrock was determined in the field by drill action. The EX diameter grout holes were drilled to a depth of 1 foot beyond the Chouteau/Hannibal Formation contact (El. 553± feet NGVD). In many cases, grout hole drilling was stopped prior to final depth due to loss of drill water and then pressure tested and pressure grouted. This practice was required by the specifications to prevent loss of permeable zone due to its premature plugging with drill cuttings. Upon completion of drilling, each grout hole was thoroughly washed by circulating clear drill water from the bottom of the hole until all drill cuttings were removed. If there was no drill water return, the pump was run at maximum capacity for a period of five minutes. Due to the small boring diameter (1-31/64-inch O.D.), the Contractor experienced considerable problems with caving during drilling and after pressure testing.

Generally, each abutment grout hole was pressure tested by a combination of single and double packers. The bottom 2± feet of each grout hole would be tested with a single pneumatic or leather cup packer, whereas the remainder of the grout hole was tested in 5-foot intervals with a double packer. A total pressure (gage and hydrostatic) of one psi per foot of vertical cover was used for all pressure testing. The normal duration of each pressure test was 5 minutes unless a significant take occurred and then the test was expanded to 15 minutes. In addition, the take interval was pressure washed for a period of up to 30 minutes to remove the joint clay filling encountered during drilling.

Neat grout of Type II cement and water or Type II cement, fluidifier and water was used for all abutment grouting. Fluidifier generally was used only in the initial grout mixes. Grout mixes were in the proportions directed by the Contracting Officer's Representative, who, from time to time, changed the mixes due to the behavior of the grout flow in the hole. The selection of the initial grout mix was based upon the results of the pressure test and the initial range of grout mixes varied from 6:1 to 3:1 with subsequent grout mixes ranging from 2:1 to 0.8:1. In many cases, the grout interval was flushed with water up to 30 minutes just prior to injection. The grouting of any hole was considered complete when the rate of grout injection was 0.1 cfm or less. Upon completion of pressure grouting operations, the grout hole was backfilled with a grout with a water/cement ratio of 1:1 or thicker and the 2-inch pipe was pulled or cut 2 feet below existing ground elevation.

Predetermined zone elevations were not used to delineate future grout stops. Generally, the elevation of the grout packer was based upon the elevation of pressure test data which allowed grout to be injected under greater pressure (refer Drawings Nos. 143/2, 144/2 and 145/2 which show the pressure test and grout data).

Closure of the right abutment curtain was not accomplished, as shown by Plate No. 1, since essentially no split-spaced borings were drilled. The remainder of work for the right abutment grout curtain was terminated for the convenience of the Government.

MAIN DAM CONTRACT

RIGHT ABUTMENT GROUTING SUMMARY

		CHOUTEAU GROUP AND TOP OF HANNIBAL SHALE				BURLINGTON LIMESTONE				ENTIRE HOLE			
	No. of Holes	No. of Takers	Total Feet	Cu. Ft. of Cement Sacks	Cu. Ft. of Cement Ft.	No. of Takers	Total Feet	Cu. Ft. of Cement Sacks	Cu. Ft. of Cement Ft.	No. of Takers	Total Feet	Cu. Ft. of Cement Sacks	Cu. Ft. of Cement Ft.
Primary Holes R1 thru R15	15	12	870	2,088.5	2.40	12	690	775.5	1.12	13	1,560	2,864	1.84
Split-Spaced Holes R13-1 R14-1 R15-1	3	2	194	578	2,98	1	138	14	0.10	2	332	592	1.78
D17 and D16 Line Holes	20	10	1,040	954.7	0.92	6	518	139	0.27	13	1,558	1,093.7	0.70
All Holes	38	24	2,104	3621.2	1.72	19	1,346	928.5	0.69	25	3,450	4,549.7	1.32

NOTE: D16 Line Was in Chouteau Only

4. Lower Gallery Drains

The original scope of main dam contract work for the construction of the lower gallery drainage curtain consisted of drilling and flushing 3-inch diameter drains in the upstream and downstream gutters of the entire lower gallery. By Modification No. P00046 (Corps File 2Q) to Contract No. DACW43-73-C-0134 (Main Dam Contract), all drain holes would be pressure tested as a single zone. The upstream line of drains would be pressure tested prior to drilling of the downstream drains and, if a significant water take occurred during pressure testing, then the drains would be grouted. If grouting was required then, a replacement line of drains would be drilled downstream of the grout curtain at a vertical angle (refer Drawing No. 182/2 for location, angle, orientation and depth of the original upstream and downstream drains).

Lower gallery drain hole drilling by Continental Drilling Co. began on 13 October 1977 and lasted until the latter part of July 1978. The Contractor shutdown drilling operations for the winter months from 2 December 1977 to 27 March 1978 and again from 17 May 1978 to 30 May 1978 due to an Operating Engineers' strike. Generally, the lower gallery drain hole drilling and right abutment curtain work were performed simultaneously.

The majority of the drain casings (3.5 diameter by 5 long threaded black steel pipe) were set by the Main Dam Contractor, Massman Construction Co., during lower gallery monolithic concrete placements. The gallery drains were drilled using an NX diamond plug bit and, upon completion of drilling, each drain was thoroughly washed by circulating clear drill water from the bottom of the drain until all drill cuttings were removed. During drilling, the Contractor often encountered reinforcing steel, especially in the powerhouse area. If the Contractor's driller could not drill through the

reinforcing steel, a new nipple, e.g., D15-5, was set 1 foot away. Generally, all upstream drains were drilled prior to the commencement of pressure testing operations.

The Contractor began pressure testing the drains in Monolith D-1/2 utilizing a single zone concept with the packer set into the drain casing. The first nine drains tested all had significant water losses and intercommunication. Based upon the high probability of interconnection between the drain located in Monolith D-1/2-D-11/12, the Contractor was directed to test each drain in three equal zones. The results of the lower gallery pressure test program can be found on Drawings Nos. 183/2 and 184/2.

The decision to grout the lower gallery drains was made at the OCE Conference dated 24 July 1978 through 26 July 1978. However, no grouting was performed by Continental Drilling Co. due to termination of their work for the convenience of the Government.

B. Related Contracts

1. Uplands Exploratory Drilling

In order for the design elements to re-examine the potential for abutment seepage due to the exposure of the left abutment cavities (1977) and the initial right abutment curtain grout takes, a new exploratory drilling contract was awarded to Continental Drilling Co. of Madera, California, on 3 April 1978. On 24 April 1978, the Contractor mobilized the following equipment to the project site:

One (1) Longyear HC150 Drill Rig
One (1) Failing 1500 Drill Rig
One (1) Gardner-Denver FX-FXCR Pump
One (1) Bean 35#2307 Pump
One (1) Bean Royal 55#J40329 Pump

One (1) Rockford PTA 5851 Pump

Two (2) 500± Gallon Water Tanks

Drill Rods (250 feet)

NX and 6-inch Casing (200 feet)

Two (2) Water Meters and Other Pressure Test Equipment

The scope of contract work called for the drilling of 16 borings, 801 through 816 CA. Eight of these borings were to be vertical, designated by "C" following the boring number, and eight were to be inclined at an angle of 30°, designated by "CA" following the boring number. The angle borings on the left abutment would be drilled at an azimuth of N45°W; those on the right abutment would be drilled at an azimuth of S45°W. The general location of the 800 series borings are found on Drawing No. 146/2.

The specifications for this contract stated that no soil sampling or rock coring above El. 650 feet NGVD would be required. All coring of NX/NQ diameter angle borings were to penetrate 1 foot of the Hannibal Shale and the 4-inch diameter vertical borings were to extend through the Hannibal Shale and penetrate 5 feet into the Louisiana Limestone Formation. In addition, plastic down-hole casing would be installed as directed by the Contracting Officer's Representative in the vertical borings to enable geophysical logging below troublesome zones or to keep the hole open for seismic investigations. This plastic casing would be installed through the overburden casing but shall be large enough to allow drilling NX/NQ size core hole to a deeper depth. The Contractor was also required to provide detailed geologic logs for each of the 800 series borings, and these were to be completed by a graduate geologist. The as-drilled locations and geologic logs are shown on Drawings Nos. 147/2 through 153/2. The stationing of Boring 802CA1, as shown on Drawing No. 150/2, is incorrect and should read 75+01, O/S 83.4 upstream.

The overburden and rock above El. 650± feet NGVD were drilled with a tricone roller bit using water or bentonite drilling fluid as the circulating medium. In order to case the overburden, the Contractor generally used NX casing for the angle borings and PVC pipe for the vertical holes. The angle borings were generally cored using NQWL, whereas the vertical borings were cored with PQWL. Generally, there was no less than 95% core recovery overall for the 800 series borings.

When each boring was completed to depth, it was pressure tested in 5-foot intervals with a single packer. Generally, each interval was tested for 5 minutes. Down hole casing was installed in the vertical borings to allow for seismic testing by Government personnel. All borings were left open to monitor grout communication and the anticipated changes in the abutment groundwater elevation due to future grouting for the Main Dam Abutment and Uplands Drilling and Grouting Contract. Upon completion of the Main Dam Abutment and Uplands Drilling and Grouting Contract, all 800 series exploratory borings were backfilled with a 1:1 grout mixture.

A review of all sounding data taken prior, during and after completion of the above contract shows no uniform increase in the exploratory water levels after the completion of the right or left abutment grout curtains. However, after completion of some grout sections within a particular reach, there was a corresponding rise in the adjacent exploratory borings' water level.

The original 16 borings were completed on 25 August 1978 with the drilling of Boring 813C1. After analysis of the original 16 borings by St. Louis District personnel, 8 additional borings were added. Continental Drilling Co. began the first of these borings, 818C, on 26 August 1978 and drilled all, or part of, 3 more, the last being drilled on 22 September 1978. The St. Louis District Field Exploration drill crews took over drilling operations and began work on 3 October 1978 with Boring 817C. Because of this transition, one boring, 819C, Station 26+32, Offset 153 feet Upstream, was replaced by Boring 819C1, Station 26+38, Offset 152.5 feet Upstream. Corps' drill personnel completed the last of the 6 remaining additional borings on 14 December 1978.

Seismic data gained from the 800 series exploratory borings was used to determine top of firm rock and delineate areas of potentially greater grout take for the Main Dam Abutment and Uplands Drilling and Grouting Contract. In areas where seismic data indicated a potential for greater grout takes, subsequent grouting operations generally confirmed the seismic data.

2. Main Dam Abutment and Uplands Drilling and Grouting Contract

(a) Introduction

The Main Dam Abutment and Uplands Drilling and Grouting Contract was awarded to Boyles Bros. Drilling Company of Woods Cross, Utah. Notice to Proceed was given on 24 September 1979 and the contract was completed on 16 July 1981. The principal equipment mobilized by the Contractor for this contract was as follows:

Two (2) HC-150 Truck-mounted Rotary Drills
One (1) Simco 4000 Track-mounted Diesel Hydraulic Rotary Drill
One (1) Simco 4000 TR2 Track-mounted Diesel Hydraulic Rotary Drill

Two (2) G1100 Track-mounted Air-hydraulic Rotary Drills

One (1) G1100 Track-mounted Super Mine Air Percussion Drill

One (1) G800 Track-mounted C.P. 65 Air Rotary Drill

One (1) Joy Ramtrack Track-mounted Air-hydraulic Rotary Drill

Six (6) C.P. 65 Air Rotary Drills

One (1) Hydraulic Grout Plant with 3L10 Moyno Pump, Hydraulic Vac Seal and two 30-cubic foot Tubs

Two (2) Air Grout Plants with 3L6 Moyno Pumps, Air Vac Seal, 35-cubic foot Mixing Tubs and 33-cubic foot Holding Tank

One (1) Air Grout Plant, Skid-mounted, 22-cubic foot Holding Tub, 3L10 Moyno Pump and Vac Seal

Two (2) Air Grout Plants, Trailer-mounted, 30-cubic foot Tubs, 3L10 Moyno Pump and Vac Seal

One (1) Air Grout Plant, Skid-mounted, 11-cubic foot Tubs, 3L6 Moyno Pump and Vac Seal

Foundation drilling and grouting performed under this contract was divided chronologically into four phases. Work was also separated by type and location into seven areas which are designated as reaches. The contract schedule was as follows:

Phase I, Reach 6, Left Abutment Consolidation Grouting

Phase II, Reach 7, Lower Gallery Curtain Grouting and Drain Hole Drilling

Phase III, Reach 5, Left Abutment Curtain Grouting, Triple Line; and Reach 4, Left Abutment Curtain Grouting, Single Line

Phase IV, Reach 3, Monoliths D-16 and D-17 Curtain Grouting; Reach 2, Right Abutment Curtain Grouting, Triple Line; and Reach 1, Right Abutment Curtain Grouting, Single Line. Also included in Phase IV was backfilling of the 800 series exploratory holes in Reaches 1, 2, 4 and 5.

In order to provide extensive inspection of all foundation drilling and grouting phases as required by SLD design element, SLD grouting consultant and LMVD personnel, the following personnel criteria was used:

Lead Geologist
Office Geologist
Grouting Geologist (one each shift, each plant)
Inspector (one each shift, each plant)
Inspector (one each for drilling)

Since the Contractor typically performed the majority of all foundation drilling and grouting on a 3-shift basis at two locations, a total of 15 geologists and inspectors provided the required inspection. The project initially was staffed by A/E contract geologist (Shannon and Wilson) and Government project personnnel until the newly-hired staff of term geologists could be trained in all phases of foundation drilling and grouting. In addition, a grouting consultant provided training and technical expertise. The success of the program can be directly attributed to quantity and quality of inspection.

(b) Left Abutment Consolidation Grouting

The consolidation grouting program was performed in order to consolidate and strengthen the highly-jointed and blast-fractured limestone (Lower Burlington and Chouteau Formations) adjacent to the left abutment concrete cutoff wall.

Consolidation of the foundation rock upstream and downstream of the concrete cutoff wall was accomplished by drilling and grouting a series of shallow grout holes in lines parallel to the axis of the cutoff wall. The pattern grout holes were staggered at 5-foot intervals along the lines.

All pattern grout holes were drilled at an inclination of 20° from the vertical and upstation to a vertical depth of 10 feet or until the Hannibal Shale was encountered, whichever occurred first (refer Drawings Nos. 170/2, 171/2 and 172/2 for the limits of the consolidation grouting program and the station and offset of the as-drilled pattern grout holes).

The consolidation program was accomplished in two stages in order to prevent any interference between drilling and grouting operations and the foundation shale preparation. Consolidation drilling and grouting on the El. 610 foot NGVD bench (Station 18+80 to Station 20+10) within the cutoff trench began on 15 October 1979 and was completed by 6 November 1979. Work on the abutment 1V:1H slope was started on 17 January 1980 and was completed by 31 March 1980.

The consolidation grout holes on the El. 610 foot NGVD bench were drilled with a single C.P. 65 drill mounted on a G800 air track, whereas the grout holes on the abutment face were drilled with C.P. 65 stand drills. Three-inch diameter diamond impregnated plug bits were used for all drilling and water was used as a circulating medium. Each hole was washed upon completion of drilling. Twelve of the original 80 abutment grout pattern holes located at the base of the 1V:1H slope were deleted due to the amount of rock excavation for the cutoff wall. In addition, a number of pattern grout holes were deleted on the El. 610 foot NGVD bench due to their location in the cavity concrete backfill. As per the specifications, no pressure testing of the consolidation grout holes was required. However, the specifications did require an initial grout mix of 4:1 and a maximum gage pressure of 3 psig.

Each grout hole was grouted as a single zone with a mechanical packer inserted into the collar of the hole. The grout holes were grouted with a neat cement consisting of water and Type II cement only. The grout mixes utilized ranged from a water/cement ratio of 4:1 to a water/cement ratio of 0.6:1. If surface leakage occurred during grouting, as often was the case with the outside perimeter grout holes, the Contractor attempted to plug the fractures with wooden wedges, oakum or quick-set cement. If the leakage still continued, then the grout mix would be thickened to a water/cement ratio of 0.6:1 and, if necessary, grouting would be performed on an intermittent basis. All grout holes were backfilled with a grout mix of 0.8:1.

The sequence of grouting the consolidation grout holes on each side of the cutoff wall consisted of first grouting the two lowermost rows of grout holes normal to the cutoff wall axis and then the grouting of the perimeter, e.g., line C5D, grout holes in an upstation manner. On completion of grouting the perimeter holes, the two inner lines were drilled and grouted. The same sequence was generally followed during the grouting on the El. 610 foot NGVD bench. Upon completion of grouting the pattern holes for each stage, the split-spaced holes, e.g., C4.5D, were drilled adjacent to the grout holes with significant takes or grout holes that had communicated with other holes. Typically, the perimeter holes had significant grout takes, whereas the inside grout lines were found to be essentially tight (refer Drawings Nos. 171/2 and 172/2 which show the location of the split-spaced grout holes and unit grout takes per hole).

Due to the elevation differential and the type of grouting, the Contractor grouted the 1:1 pattern grout holes from a grout plant located at the base of the abutment. Grouting of the pattern holes on the El. 610 foot NGVD bench was performed from a placing sump with a 3L6 Moyno pump set on the El. 610 foot NGVD bench.

A total of 225 pattern and split-space grout holes (2,818.2 linear feet) was drilled and pressure grouted. A total of 378.8 sacks of cement was placed for a unit take of 0.13 cubic foot per foot of grout hole. A comparison of the high grout take holes (71.0 cubic feet) on the 1V:1H slope as compared to the high grout take holes on the El. 610 foot NGVD bench is summarized as follows:

HIGH TAKE HOLE ON EL. 610 BENCH		HIGH TAKE HOLE ON 1V:1H SLOPE	
Hole Number	Grout Take (Sacks)	Hole Number	Grout Take (Sacks)
C3D-20	1.5	C2U-3	31.4
C4D-18	1.0	C2U-4	32.4
C3U-21	2.4	C4U-11	17.0
C2U-21	2.0	C5D-10	66.2
C5D-19	10.0	C5D-11	70.0
TOTALS	16.9		217.0

(c) Lower Gallery Grouting and Drain Hole Drilling

Phase II of this contract required the grouting of 75 of the 83 previously drilled and pressure tested upstream drains (Continental Drilling Co.'s drilling program). In addition, Phase II required the drilling of replacement upstream drains and the drilling of the downstream drains at the previously set nipple locations by Massman Construction Co.

The principal purpose of the Phase II program was to consolidate the structural foundation rock in Monoliths D-1-D-12 (including the powerhouse), D-14 and D-16 in order to control foundation leakage and uplift pressures.

The first order of work involved constructing a grout curtain by washing and pressure grouting 75 of the original upstream drains (grout holes) in the above monoliths. The locations, angle and orientation of each of the grout holes are shown on Drawings Nos. 183/2 and 184/2. The order of grouting was dictated by the results of the pressure testing program conducted by Continental Drilling Co. in June and July 1978 (refer Drawings Nos. 183/2 and 184/2). The dates, order of grouting and unit take are presented in Table No. 2.

In addition, 14 split-spaced grout holes were required based on the following reasons: (1) specification requirement of 20 sack placement; (2) plugged holes due to mechanical failure of the Contractor's (Boyles Bros. Drilling Co.) grouting equipment and intermittent grouting adjacent to USBR and Carlson piezometers in Monolith D-5/6.

Each grout hole was pressure grouted as a single zone and, if great communication occurred to adjacent hole(s), fresh grout was allowed to vent before capping. Refusal criteria was the placement of 1 cubic foot of grout in a 10 minute period. Each grout hole was tremie backfilled with a range of grout mixes varying in water/cement ratio of 2:1 to 0.8:1. Subsequent tremie operations or "the topping off" utilized a grout mix with a water/cement ratio of 0.8:1.

To prevent hydraulic lifting, the maximum grouting pressure used was not in excess of the static load of concrete or the weight of the rock burden adjacent to the concrete structure. The maximum gage pressure used in the lower gallery of Monoliths D-1-D-11/2 was 55 psig and gage pressures of 26 psig and 22 psig for the lower gallery Monoliths D-14 and D-16, respectively. As a further safeguard in the prevention of fracturing the foundation, the Ashcroft gage on the header was constantly checked and changed once every shift.

The equipment arrangement and operation for grouting in Reach 7 were substantially different than in Reaches 1 through 5. On the abutment, the grout header and grout plant were at essentially the same elevation; however, in the lower gallery, the elevation difference between the grout plant (El. 653 feet NGVD) and the grout header (El. 473 feet NGVD) would result in pressures greater than the maximum allowable pressure, e.g., 55 psig. Due to this difference in pressure, a secondary placing sump was mobilized to the lower gallery of Monoliths D-1/2-D-11/12. Consequently, the Contractor's grouting system was arranged in the following manner: (1) grout plant (with 3L10 Moyno pump) was located on the right abutment adjacent to Monolith D-17; (2) a series of 1 1/2-inch metal or PVC pipe distributed throughout the lower gallery; and (3) placement of a 10 cubic foot portable sump with a 3L6 Moyno pump at the elevation of the grout holes (El. 473 feet NGVD). The grout was mixed on the abutment and transported via the pipe lines to the portable sump. Grout was then circulated from the sump to the header and back. The gage pressure was controlled at the header. In addition, the portable sump was moved at least four times so that the distance between the sump and the hole being grouted was no more than 140 feet.

The above system generated numerous problems in the grouting of Reach 7. The system did not consist of additional pipe for circulation from portable sump back to the main plant. Consequently, the grout in the "flow" line would set after lengthy periods of grouting and this system also prevented the quick change of grout mixes required by the behavior of the grout flow. The problem was corrected in later modification work in Monoliths D-14 and D-15.

During the initial phase of grouting in the vicinity of Monolith D-5/6, the adjacent USBR and Carlson piezometers were continually monitored. When these instruments were in danger of being "grouted in", grouting operations were halted as per the specifications until the grout could set. The grout holes were rehooked at a later period of time. This practice of intermittent grouting adjacent to the piezometer system was discontinued at the recommendation of the grouting consultant. Fortunately, there was no loss of any piezometer system during Reach 7 grouting.

No exploratory holes were drilled in the gallery to further check the effectiveness of the grouting. However, the behavior of the lower gallery instrumentation during the initial grouting and the "0" take on the split-spaced holes indicated that the initial grouting program had been successful.

When grouting had progressed to Monolith D-16, drilling began on new upstream and downstream drains in Monolith D-1/2. Drilling of the new drains began on 4 December 1979 and was completed on 19 February 1980. In total, 77 upstream drains and 86 downstream drains were drilled to elevations shown on Drawings Nos. 185/2 and 186/2. The new upstream drains are oriented S30E and the downstream drains are oriented S70E.

LOWER GALLERY GROUTING SUMMARY

Hole Number and Order Grouted	Date 1979	Sacks/Hole	Sacks/Foot	Pressure Test Results (cfm)
D3/4-6	15 November	62	0.93	6.5
D5/6-1	15 November	11	0.176	6.5
Repeated D5/6-1	16 November	0.1818	0.0026	-
D5/6-2	16 November	0.045	0.00066	6.0
D5/6-3	16 November	0	0	6.5
D5/6-4	16 November	0.118	0.0018	1.7
EB-1	16 November	0.0727	0.0011	0.55
D5/6-5	16 November	0.76	0.012	0.25
EB-2	16 November	32	0.57	1.8
EB-3	16 November	0.61	0.0096	0.26
KA-5	19 November	55	0.846	6.0
Repeated KA-5	20 November	15	0.198	-
KA-4	20 November	0	0	6.0
KB-3	20 November	0	0	3.5
KA-6	20 November	0	0	3.5
KB-2	20 November	0	0	3.25
KB-1	20 November	0.36	0.0083	No Data
EB-4	20 November	0	0	0.7
KA-7	20 November	1.45	0.023	1.6
KA-8	20 November	0.09	0.0014	3.0
KA-9	21 November	0.09	0.0014	0.6
PA-1	21 November	0	0	4.0
PA-2	21 November	1.0	0.015	2.5
PA-3	21 November	0	0	5.2
PA-4	26 November	6.5	0.1	0.3
D1/2-1	26 November	2.15	0.0316	1.1
D1/2-2	26 November	5.615	0.0826	1.1
D1/2-3	26 November	0.30	0.0044	0.5

TABLE NO. 2

LOWER GALLERY GROUTING SUMMARY

Hole Number and Order Grouted	Date 1979	Sacks/Hole	Sacks/Foot	Pressure Test Results (cfm)
D1/2-4	26 November	0.46	0.00676	0.1
D1/2-5	26 November	0.3	0.0044	0.15
D1/2-6	26 November	0.15	0.0022	0.1
D3/4-1	26 November	0.61	0.00897	No Data
D3/4-2	26 November	0.23	0.00333	0.15
D3/4-3	26 November	0.23	0.00338	0.10
D3/4-4	26 November	0.38	0.00558	0.18
D3/4-5	26 November	0.2	0.00294	No Data
PA-8	27 November	0.76	0.0116	0.35
PA-5	27 November	1.33	0.0214	0.2
PA-6	27 November	0.08	0.00128	0
PA-7	27 November	0.3	0.00473	0.08
D7-1	27 November	0.15	0.00231	0.3
D7-2	27 November	1.08	0.0168	0.6
D7-3	27 November	0.15	0.00232	0.1
D8-1	27 November	0.08	0.00125	0
D8-2	27 November	0.15	0.00232	0
D8-3	28 November	0.46	0.00721	0.1
D8-4	28 November	0.46	0.00721	0.1
D8-5	28 November	0.62	0.00971	0.2
D8-6	28 November	0.08	0.00125	0
D9-1	28 November	0	0	0.4
D9-2	28 November	1.0	0.01642	0.4
D9-3	28 November	0.54	0.00868	0.4
D9-4	28 November	1.23	0.01946	0.4
D9-5	28 November	0.46	0.00736	0.4
D9-6	28 November	0.23	0.00363	0.4
D10-4	28 November	35.0	0.510204	4.0
Repeated D10-4	3 December	0.077	0.00112	4.0
D10-3	3 December	1.661	0.02421	3.3

TABLE NO. 2

LOWER GALLERY GROUTING SUMMARY

Hole Number and Order Grouted	Date 1979	Sacks/Hole	Sacks/Foot	Pressure Test Results (cfm)
D10-2	3 December	1.415	0.02063	1.7
D10-1	3 December	0.015	0.000219	0.5
D10-5	3 December	0.107	0.00156	0
D10-6	3 December	0.23	0.00335	0.1
D11/12-1	3 December	0.877	0.0127	0.6
D11/12-2	3 December	0.846	0.0122	0
D11/12-3	3 December	0.077	0.0011	0.04
D11/12-4	3 December	0.077	0.00111	0.1
D11/12-5	3 December	0	0	0
D11/12-6	3 December	0.692	0.01	0.3
D11/12-7	3 December	1.154	0.01668	1.1
D11/12-8	3 December	0.154	0.00223	0
D11/12-9	3 December	0.077	0.00111	0.1
D14-1	17 December	0.23	0.009	0.2
D14-2	17 December	0	0	0.06
D14-3	17 December	0.5	0.02	0.7
D14-4	18 December	0.3	0.012	0.6
D10-3A	18 December	0.3	0.01	0.18
D1/2-1A	19 December	0.3	0.01	0.122
D14-5	22 December	0.1	0.002	0
D16-2	22 December	0	0	0
D16-1	22 December	0.1	0.002	0

TABLE NO. 2

LOWER GALLERY GROUTING SUMMARY

Hole Number	Date Pressure Tested (1979)	Pressure Test (cfm)
D10-1A	18 December	0
D10-2A	18 December	0.03
D10-4A	18 December	0.07
EB-1A	19 December	0.038
EB-2A	19 December	0.002
KB-3A	19 December	0.06
KB-5A	19 December	0.096
D1/2-2A	19 December	0
D3/4-5A	19 December	0.038
D5/6-3A	19 December	0.004
D5/6-2A	19 December	0.026
D5/6-1A	19 December	0.012

A total of 89 holes having a linear footage of 5,657.5 feet was drilled and grouted with a total grout take of 249.5 cubic feet for a unit take of 0.044 cubic foot per foot of drilled hole.

(d) Left Abutment Triple and Single-Line Grout Curtains

Phase III of Boyles Bros. Drilling Co.'s contract consisted of drilling (3-inch diameter), pressure testing, pressure grouting and backfilling grout curtain borings in the left abutment triple line (Reach 5) and left abutment single line (Reach 4). Work began in Reach 5 with the drilling of primary grout holes in the downstream line of Section 1 on 6 November 1979 and the last Reach 5 exploratory boring was completed on 8 September 1980. Single-line drilling started on 16 April 1980 and the last Reach 4 exploratory boring was completed on 16 October 1980.

Each reach was divided into odd and even sections. A section, by specification definition, is a portion of the grout curtain measuring 120 feet in length in which grouting operations were not permitted at the same time that drilling was in progress. The primaries in odd-numbered sections were drilled and grouted followed by primaries in even-numbered sections, secondaries in odd-numbered sections, secondaries in even-numbered sections and so on to completion. During work on the left abutment triple line, the Contractor requested this order be changed to facilitate his drilling and grouting operations. During the remainder of work, pattern holes in odd-numbered sections were completed followed by pattern holes in even-numbered sections. Before drilling a higher order grout hole in an odd/even-numbered section, the Contractor was required to wait 8 to 24 hours depending upon the amount and nature of grouting. In Reach 5, the downstream line was completed first followed by the upstream line then the centerline.

The mandatory primary and secondary grout borings were on 40-foot centers and the mandatory tertiary borings were on 20-foot centers. All pattern borings were drilled on an angle of 20° from vertical and oriented upstation. All pattern borings were drilled to a depth of 1 foot beyond the Chouteau/Hannibal Formation contact (El. 553± feet NGVD) (refer Drawings Nos. 173/2 through 181/2 for the station limits of Reaches 4 and 5 and the as-drilled pattern hole locations).

Pattern borings were drilled, pressure tested and pressure grouted in groups of three and splits in groups of two; primaries in a section being completed and backfilled first, followed by secondaries and tertiaries. Borings were pressure tested in three zones (Zone 1, El. 550 feet NGVD to El. 590 feet NGVD; Zone 2, El. 590 feet NGVD to El. 620 feet NGVD; and Zone 3, El. 620 feet NGVD to El. 640 feet NGVD). The criteria for determination of order of grouting was first by zone, lowest elevation first, then by pressure test results, greatest take first.

Total pressures used for pressure tests and grouting in Zone 1 were 1.5 psi per foot of vertical cover and 1 psi per foot of vertical cover in Zones 2 and 3. An exception was the cutoff trench where a pressurs of 1 psi per foot of vertical cover for Zone 1 and 3 psi gage pressure for Zone 2 was used.

The range of grout mixes, including intermediate proportions (e.g., 5.5:1) varied from 6:1 to 0.6:1. The composition of neat and mortar grout mixes is shown on Table No. 3. The guidelines for thickening the grout mixes and the criteria for mortar and intermittent grouting is presented on Plate No. 2 entitled "Cookbook Grouting". In addition, the specifications required the Contractor to use 1 1/2-inch I.D. grout supply lines and packer

pipe, and restricted the length of supply lines to 140 feet between the sump and header. Any pattern hole that exceeded 0.25 cubic foot per linear foot of grout take was split-spaced.

Any pressure test result in excess of 0.1 cfm at approximate zone pressure was pressure grouted, the grout mix being determined by the pressure test result. Table No. 4 shows the prescribed grout mix to be used for each pressure test result according to the contract specifications. Table No. 5 shows an alternative suggested by the grouting consultant.

In general, the guidelines in Table No. 4 were followed, the exception being the latter portion of the left abutment triple line where high initial grout takes suggested the use of Table No. 5. The use of Table No. 5 was discontinued with the start of the left abutment single line as differing geologic conditions warranted. After grouting, borings were backfilled with a grout mix of 1:1 using a tremie pipe.

In the left abutment triple line, 144 original pattern borings and 56 split-spaced borings were drilled and pressure tested for a total of 200 borings. The greatest grout take in the left abutment triple line was a secondary boring in the downstream line, SDL-10, with a total grout take of 1,369 cubic feet of grout in Zone 1 (refer Plate No. 3 for the unit take in Reach 5).

Reach 4 consisted of 60 pattern borings and 58 fourth, fifth, sixth, seventh and eighth order borings for a total of 118 borings. In Section 5, unusual grouting problems (clay seam) required the construction of a partial triple line. The greatest grout take in the left abutment single line was a primary boring (PSL-6R) that took 982 cubic feet of grout in Zone 1 (refer Plate No. 4 for the unit grout take in Reach 4).

Upon completion of each reach, the exploratory borings were drilled to check the effectiveness of the grout curtain. The locations, angle and depth of the exploratory borings were based upon the following criteria:

(1) Unusual drilling conditions noted on the driller's log, e.g., rod drops, clay and total water loss.

(2) Unusual grouting problems, typically within the limits of seismic anomalies.

(3) Grout takes in excess of 100 bags.

(4) Recommendations of the grouting consultant.

The locations and results of the exploratory borings can be found on Table No. 6.

COMPOSITION OF GROUT MIXES IN RELATIONSHIP TO WATER/CEMENT RATIOS

Neat Grout

Cement, bentonite (up to 3% by weight) and water for all mixes with a water/cement ratio of 6:1 to 5:1

Cement and water for all mixes with a water/cement ratio between 4:1 and 1:1

Cement, bentonite (up to 3% by weight) and water for all mixes with a water/cement ratio of 1:1 or thicker

Mortar Grout

Cement, sand and water

Cement, fluidifier (up to 3% by weight), sand and water for all mixes with a water/cement ratio of 1:1 or thicker

NOTE: Although the specifications allowed up to 3% bentonite or fluidifier by weight, the maximum percentage of bentonite utilized for this contract was 2% and 1% for fluidifier.

TABLE NO. 3

GENERAL GUIDE FOR DETERMINATION
OF GROUT MIXES FROM SPECIFICATIONS

Pressure Test Results	Water/Cement Ratio
Up to 4 cfm	6:1
4 cfm to 6 cfm	5:1
6 cfm to 7 cfm	4:1
7 cfm and above	3:1

TABLE NO. 4

GENERAL GUIDE FOR DETERMINATION
OF GROUT MIXES PROPOSED BY GROUTING CONSULTANT

Pressure Test Results	Water/Cement Ratio
0.1 cfm to 2 cfm	6:1
2 cfm to 3 cfm	5:1
3 cfm to 4 cfm	4:1
4 cfm to 5.5 cfm	3:1
5.5 cfm to 6.5 cfm	2:1
6.5 cfm and above	1:1

TABLE NO. 5

EXPLORATORY BORINGS, LEFT ABUTMENT SINGLE LINE
(REACH 4)

Boring Number	Station	Offset	Angle	Depth	Grout Take (Depth) (Sacks)
EXL5#13R	25+55.5	1' U/S	21°S	122.5	-
EXL5#14	25+60.5	0.5' U/S	16°S	119.4	-
EXL5#15	25+81.5	0.5' U/S	8.5°S	117.1	
EXL6#16	26+81	0.5' U/S	18.5°S	125	40-45 3.38
EXL7#17R	27+06.5	0.5' U/S	Vertical	121.5	-
EXL7#18	27+76	Centerline	0.5°S	125	638-640 1.43
EXL8#19R	28+76	0.5' U/S	14.5°S	134	75-80 3.54
EXL8#20	28+84.5	Centerline	Vertical	131.1	-
EXL9#21	29+52.2	0.5' U/S	Vertical	134	-
EXL9#22	29+92.5	Centerline	Vertical	136	-
EXL5#23	25+26.5	Centerline	Vertical	113	68-113 13.5
EXL5#24	25+26.5	1.3' D/S	Vertical	113	-

TABLE NO. 6

EXPLORATORY BORINGS, LEFT ABUTMENT TRIPLE LINE
(REACH 5)

Boring Number	Station	Offset	Angle	Depth	Grout Take
EXL1#1	20+35	2.5' U/S	30°S	82.2	-
EXL1#2	20+67	2.5' D/S	30°S	80.8	-
EXL1#3	21+14	2.5' U/S	30°S	111.8	-
EXL1#4	21+13	2.5' D/S	4°N	98	-
EXL2#5	21+27	2.5' D/S	24°S	108.5	-
EXL2#6	21+74	2.5' U/S	14°S	103.1	-
EXL2#7R	22+31	2.5' D/S	15.5°S	104.6	-
EXL2#8	22+39	2.5' D/S	Vertical	101.1	-
EXL3#9	23+49	2.5' U/S	30°S	119.3	-
EXL3#10	23+60.5	1.2' D/S	21.5°S	112.1	-
EXL4#11	24+42	2.5' U/S	20°S	117.3	-
EXL4#12	24+54.5	2.5' D/S	7°S	659.1	

TABLE NO. 6

"COOKBOOK" GROUTING
PAGE 1

PRESSURE TEST RESULTS

Water Take (cfm)	Water/Cement W/C
Up to 4	6:1
4 - 6	5:1
6 - 7	4:1
7+	3:1

INITIAL MIX — or — Pressure increases to 3/4 maximum pressure → Refer to Next Page

IF NO BUILD-UP IN PRESSURE

Inject 20 sacks of cement at the initial mix W/C Ratio — or →

PREPARE MIX OF NEXT LOWER W/C RATIO

Inject 20 sacks of cement at W/C Ratio of 6:1, 5:1, 4:1, 3.5:1, & 3:1 as long as 3/4 maximum pressure is not reached — or →

Inject 40 sacks of cement at W/C Ratios of 2.5:1, 2:1, 1.75:1, 1.5:1 and 1.25:1 as long as 3/4 maximum pressure is not reached — or →

Inject 60 sacks of cement at W/C Ratios of 1:1, 0.9:1, 0.8:1, 0.7:1 as long as 3/4 maximum pressure is not reached — or →

START MORTAR GROUTING

Inject 80 sacks of 0.9 part water, 1 part cement, 0.5 sand (0.9:1:0.5) + 1% fluidifier and 80 sacks of 0.8:1:1 & 0.7:1:1.5 if 3/4 maximum pressure is not reached — or →

IF PRESSURE INCREASES TO 3/4 MAXIMUM PRESSURE DURING THE COURSE OF GROUTING

If any pressure has not been reached or an appreciable decrease in grout take has not been reached after injecting 80 sacks of cement at 0.7:1:1:0.5 and at a total of 800 sacks in one zone--pump water into the hole for two minutes after the last batch

----- AFTER 8 HOURS -----

START INTERMITTENT GROUTING

Inject 50 sacks of cement in a 1:1 neat grout mix if 3/4 maximum pressure is not approached — or

Inject 80 sacks of cement at a mix of 0.9:1:0.5 + 1% fluidifier, followed by 80 sacks at 0.8:1:1, followed by a maximum of 500 sacks at 0.7:1:1.5 if 3/4 max. pressure is not reached inject water for 2 minutes — or

AFTER 8 HOURS

A maximum of 300 sacks of cement will be injected at a 0.7:1:1.5 mix intermittent grouting continues until 2500 sacks of cement (total) have been injected into 1 zone of 1 primary or secondary hole or 2000 sacks into 1 zone of 1 other split-spaced hole during all phases of grouting or until 3/4 of max. pressure has been reached.
If refusal has not been reached discontinue grouting the hole & drill an additional split spaced hole — or

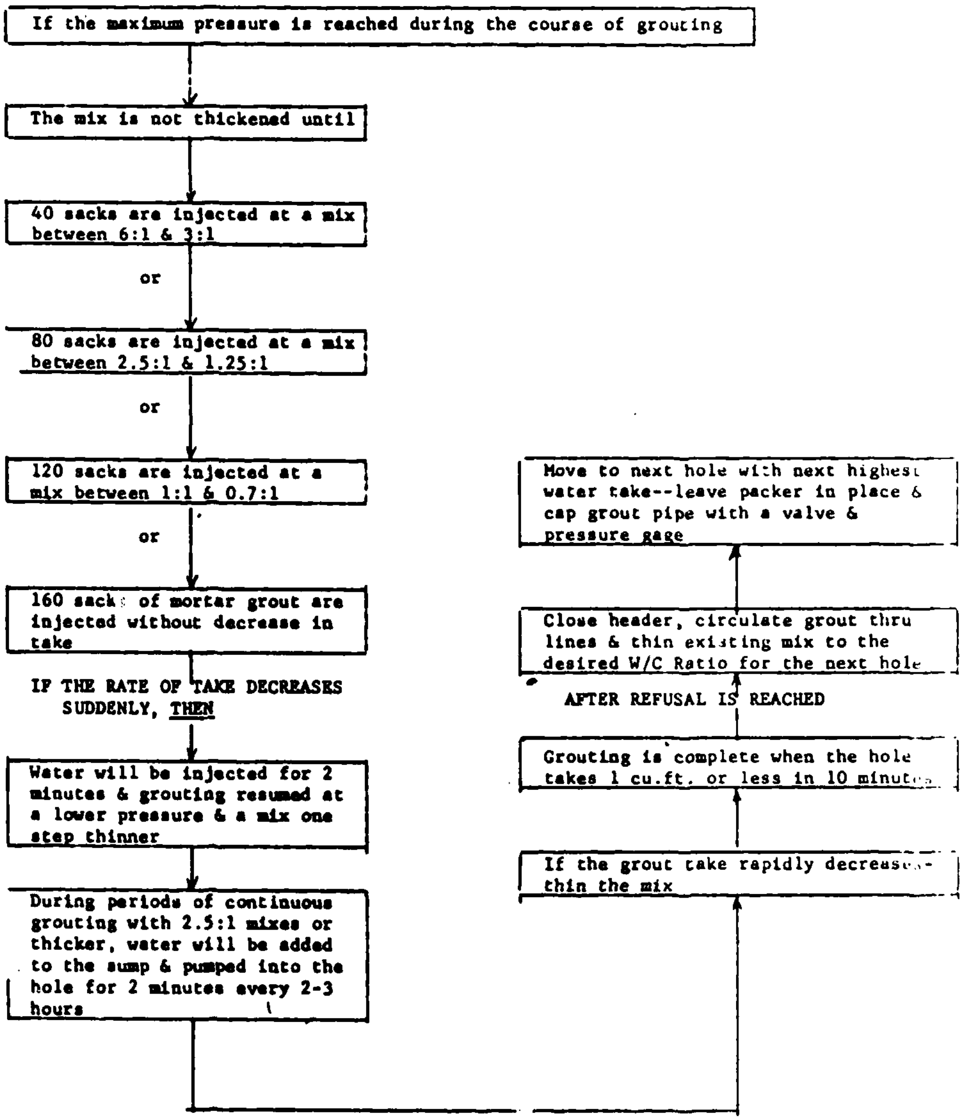

If the maximum pressure is reached during the course of grouting
The mix is not thickened until
40 sacks are injected at a mix between 6:1 & 3:1
or
80 sacks are injected at a mix between 2.5:1 & 1.25:1
or
120 sacks are injected at a mix between 1:1 & 0.7:1
or
160 sacks of mortar grout are injected without decrease in take
IF THE RATE OF TAKE DECREASES SUDDENLY, THEN
Water will be injected for 2 minutes & grouting resumed at a lower pressure & a mix one step thinner
During periods of continuous grouting with 2.5:1 mixes or thicker, water will be added to the sump & pumped into the hole for 2 minutes every 2-3 hours
If the grout take rapidly decreases-thin the mix
Grouting is complete when the hole takes 1 cu.ft. or less in 10 minutes
AFTER REFUSAL IS REACHED
Close header, circulate grout thru lines & thin existing mix to the desired W/C Ratio for the next hole
Move to next hole with next highest water take--leave packer in place & cap grout pipe with a valve & pressure gage

PLATE NO. 2

AD-A160 525 CLARENCE CANNON DAM AND MARK TWAIN LAKE FOUNDATION AND EMBANKMENT COMPLET..(U) ARMY ENGINEER DISTRICT ST LOUIS MO DEC 84 4/4

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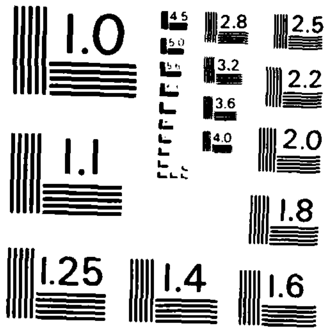

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

CLARENCE CANNON GROUTING SUMMARIES

LEFT ABUTMENT TRIPLE LINE

(REACH 5)

Grout Holes	ZONE 1 (El. 550-590 NGVD) No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	ZONE 2 (El. 590-620 NGVD) No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes
DOWNSTREAM										
Primary	12	5-42	525.7	1,935.5	3.68	12	1-08	375.4	103.1	0.27
Secondary	12	6-50	529.6	4,266.5	8.06	12	5-42	382.8	1,321.7	3.45
Tertiary	24	5-21	1,043.3	790.4	0.76	24	3-13	765.6	73.3	0.10
Quaternary	35	9-26	1,295.6	1,113.0	0.86	35	3-09	1,103.8	6.2	0.01
Fifth Order	9	1-11	267	816.0	3.06	9	0	234	0.0	0.00
Sixth Order	6	1-17	274.8	0.2	0.00	6	0	152.2	0.0	0.00
TOTAL	98	27-28	3,936.0	8,921.6	2.27	98	12-12	3,013.8	1,504.3	0.50
UPSTREAM										
Primary	12	0	514.6	0.0	0.0	12	0	377.5	0.0	0.00
Secondary	12	1-08	506.5	2.8	0.01	12	1-08	382.8	16.1	0.04
Tertiary	24	1-04	1,057.7	45.0	0.04	24	0	765.6	0.0	0.00
Quaternary	6	0	89.4	0.0	0.00	6	0	127.8	0.0	0.00
TOTAL	54	2-04	2,168.2	47.8	0.02	54	1-02	1,653.7	16.1	0.01
CENTERLINE										
Primary	12	2-17	518.6	0.4	0.00	12	0	371.1	0.0	0.00
Secondary	12	1-08	518.8	0.9	0.00	12	2-17	350.9	31.1	0.09
Tertiary	24	1-04	1,061.5	0.8	0.00	24	0	753.9	0.0	0.00
TOTAL	48	4-08	2,098.9	2.1	0.00	48	2-04	1,475.9	31.1	0.02
TOTAL FOR ZONE	200	33-17	8,203.1	8,971.5	1.09	200	15-08	6,143.4	1,551.5	0.25
TOTAL FOR REACH	200	60-10	17,694.8	11,100.7	0.63					

CLARENCE CANNON GROUTING SUMMARIES

LEFT ABUTMENT TRIPLE LINE

(REACH 5)

Grout Holes	ZONE 3 (El. 620-640 NGVD)					D.S. ZONE 1 & 2 & 3 TOTAL (El. 550-640 NGVD)				
	No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes	% Grouted	Linear Ft.	Sacks Cement Used	Unit Take (Sacks/Ft.)
DOWNSTREAM										
Primary	10	2-20	194.9	73.0	0.37	12	24%	1,096.0	2,111.6	1.93
Secondary	12	1-08	216.2	55.0	0.25	12	33%	1,128.6	5,643.2	5.00
Tertiary	24	3-13	425.1	98.2	0.23	24	15%	2,234.0	961.9	0.43
Quaternary	32	4-13	628.4	20.4	0.03	35	16%	3,027.8	1,139.6	0.38
Fifth Order	7	0	149.1	0.0	0.00	9	4%	650.1	816.0	1.26
Sixth Order	0	0	0	0.0	0.00	6	8%	427.0	0.2	0.00
TOTAL	85	10-12	1,613.7	246.6	0.15	98	17%	8,563.5	10,672.5	1.25
UPSTREAM										
Primary	11	0	199.2	0.0	0.00	12	0%	1,091.3	0.0	0.00
Secondary	12	1-08	216.2	331.0	1.53	12	0%	1,105.5	349.9	0.02
Tertiary	23	0	426	0.0	0.00	24	1%	2,249.3	45.0	0.02
Quaternary	6	0	88.1	0.0	0.00	6	0%	305.3	0.0	0.00
TOTAL	52	1-02	929.5	331.0	0.36	54	2%	4,751.4	394.9	0.08
CENTERLINE										
Primary	10	0	193.8	0.0	0.00	12	6%	1,083.5	0.4	0.00
Secondary	11	0	203.4	0.0	0.00	12	12%	1,073.1	32.0	0.03
Tertiary	22	1-05	407.9	0.1	0.00	24	3%	2,223.3	0.9	0.00
TOTAL	43	1-02	805.1	0.1	0.00	48	5%	4,379.9	33.3	0.01
TOTAL FOR ZONE	180	12-07	3,348.3	577.7	0.17					
TOTAL FOR REACH										

CLARENCE CANNON GROUTING SUMMARIES

LEFT ABUTMENT SINGLE LINE

(REACH 4)

Grout Holes	ZONE 1 (El. 550-590 NGVD)					ZONE 2 (El. 590-620 NGVD)				
	No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes
Primary	15	6-40	644.0	1,145.5	1.78	15	6-40	478.9	1,690.3	3.53
Secondary	15	3-20	661.8	701.9	1.06	15	1-07	478.5	58.3	0.12
Tertiary	30	11-37	1,314.5	2,302.4	1.75	30	2-07	957.0	1.7	0.00
Quaternary	30	6-20	1,154.2	301.2	0.26	32	3-09	961.8	269.2	0.28
Fifth Order	18	2-11	632.3	29.4	0.05	22	1-05	641.8	0.2	0.00
Sixth Order	3	3-100	130.5	40.7	0.31	3	0-0	95.7	0.0	0.00
Seventh Order	4	2-50	178.0	22.8	0.13	4	1-25	127.6	0.9	0.01
Eighth Order	3	2-66	112.5	10.9	0.10	3	2-66	95.7	5.4	0.06
TOTAL	118	35-30	4,827.8	4,554.8	0.94	124	16-13	3,937.0	2,026.0	0.53

CLARENCE CANNON GROUTING SUMMARIES

LEFT ABUTMENT SINGLE LINE

(REACH 4)

Grout Holes	ZONE 3 (El. 620-640 NGVD)					D.S. ZONE 1 & 2 & 3 (TOTAL) (El. 550-640 NGVD)				
	No. of Holes	No. of Holes Grouted and %	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes	% Grouted	Linear Ft.	Sacks Cement Used	Unit Take (Sacks/Ft)
Primary	15	5-53	319.5	30.8	0.10	15	38%	1,442.4	2,866.6	1.99
Secondary	15	2-13	319.5	12.3	0.04	15	13%	1,459.8	772.5	0.53
Tertiary	30	5-17	639.0	15.7	0.02	30	20%	2,910.5	2,319.7	0.80
Quaternary	32	6-19	681.6	16.4	0.02	32	16%	2,797.6	586.8	0.21
Fifth Order	22	1-05	468.6	2.0	0.00	22	6%	1,742.7	31.6	0.02
Sixth Order	3	0-0	63.9	0.0	0.00	3	33%	290.1	40.7	0.14
Seventh Order	4	1-25	85.2	0.9	0.01	4	33%	390.8	24.6	0.06
Eighth Order	3	0-0	63.9	0.0	0.00	3	44%	272.1	16.3	0.06
TOTAL	124	20-16	2,641.2	78.1	0.03	124	19%	11,306.0	6,658.8	0.59

(e) Monoliths D-16 and D-17 Right Abutment Triple and Single-Line Grout Curtain

Phase IV consisted of drilling, pressure testing, pressure grouting and backfilling of all grout curtain borings in Monoliths D-16 and D-17 (Reach 3), right abutment triple line (Reach 2) and right abutment single line (Reach 1). In addition, Phase IV also included the backfilling of the 800 series exploratory borings. The specification criteria for pattern hole spacing, depth, angle and orientation, order of drilling (odd/even-numbered sections), pressure testing and pressure grouting was the same as for the left abutment Reaches 4 and 5.

Foundation drilling and grouting in Monolith D-16 began on 3 December 1979 and was completed on 22 December 1979. Monolith D-16 single-line grout curtain contained 8 pattern borings (2 primaries, 2 secondaries and 4 tertiaries) stationed between dam axis Station 1+85 and dam axis Station 2+15 with a 6-foot offset upstream from the dam axis. No split-spaced grout holes were required (refer Drawing No. 156/2 for the as-drilled pattern hole locations).

The Monolith D-16 pattern holes were grouted as a single zone. The greatest grout take was a secondary pattern hole (D16-S1) which took 0.3 bag of cement in Zone 1 (refer Plate No. 5 for the Monolith D-16 grout curtain summary).

Foundation drilling and grouting in Monolith D-17 began on 11 March 1980 and the last grout hole was backfilled on 13 January 1981. The Monolith D-17 grout curtain consisted of an upstream line offset 1 foot upstream of the dam axis, a downstream line offset 4 feet downstream fron the dam axis and an extension of the downstream line beyond the southern limits of Monolith D-17. The original length of the downstream line extension was expanded to

Station 0+97.5 due to the deletion of a portion (TUR-1 and TUR-2) of the upstream line in Reach 2 which was located directly above the buried electrical manholes (refer Drawing No. 156/2 for the station limits and the as-drilled pattern hole and split-spaced grout hole locations for Reach 3).

The downstream line of the Monolith D-17 pattern grout holes was drilled, pressure tested and pressure grouted first then followed by the upstream line pattern grout holes. The grout hole with the greatest grout take was PD17-3 with a grout take of 255 bags of cement in Zone 1. Grout communication from this boring was noted at the Chouteau/Hannibal contact approximately 350 feet downstream (refer Plate No. 6 for the Monolith D-17 grout summary).

Foundation drilling and grouting for the right abutment triple-line grout curtain began on 11 March 1980 and was completed by 7 May 1981 (refer Drawings Nos. 146/2 and 157/2 through 165/2 for the station limits and the as-drilled pattern hole and split-spaced hole locations in Reach 2). The largest grout take was SDR-3, Zone 1, which took 1,540 bags of cement (refer Plate No. 7 for the Reach 2 grouting summary).

Foundation drilling and grouting for the right abutment single line began on 13 October 1980 and was completed on 29 May 1981. Due to the grout take experienced in Section 9 and Section 13, offset curtain lines were required (refer Drawings Nos. 146/2 and 166/2 through 169/2 for the station limits and as-drilled pattern and split-spaced grout hole locations). The largest grout take was SSR-8, Zone 1, which took 2,651 bags of cement. Grout communication was noted to the downstream draw (refer Plate No. 8 for the Reach 1 grouting summary).

The location and results of the right abutment exploratory boring program are shown on Table No. 7. Exploratory Borings Nos. EXR-2#1, EXR-9#2 and EXR-10#3 were drilled to determine the top of firm rock due to the differing interpretation concerning the specification definition of firm rock and the number of overburden casing that had been set below the top of Zone 3. As a result of the findings, it was determined that overburden casing would be set no lower than El. 640 feet NGVD.

EXPLORATORY BORINGS RIGHT ABUTMENT SINGLE LINE

(REACH 1)

Boring Number	Station	Offset	Angle	Depth	Grout Take Sacks	Zone Placed
EXR-7#1	77+07.43	1' D/S	Vertical	119	0	
EXR-8#1	78+31.43	1' D/S	10°N	121	0	
EXR-8#2	78+97.93	1' D/S	Vertical	121.2	0	
EXR-8#3	79+27.00	1' D/S	20°S	131	0	
EXR-8#4	79+32.43	1' D/S	20°S	131	1.07	96'/131'
EXR-9#1	80+00.43	2.5' U/S	4.5°N	127.5	2.45	53'/127.5'
EXR-9#2	80+09.93	Centerline	20°S	57.6	14.57	38'/48 TFR*
EXR-9#3	80+24.43	2.5' U/S	Vertical	127.3	0.45	43'/127.3'
EXR-9#4	80+32.00	2.5' U/S	Vertical	127.5	0.6	102'/127.9'
EXR-9#5	79+94.43	1' D/S	4°N	88.4	0	
EXR-10#1	80+78.63	1' D/S	2°N	129	1.95	50'/130'
EXR-10#2	81+40.43	1' D/S	10.5°N	133.6	0	
EXR-10#3	81+09.93	Centerline	20°S	62	0	TFR
EXR-11#1	81+80.93	1' D/S	10.5°N	135.05	0	
EXR-11#2	81+92.43	1' D/S	Vertical	129.6	0	
EXR-11#3	82+56.43	1' D/S	8°N	138.1	0	
EXR-12#1	83+48.93	1' D/S	22.5°N	150	0	
EXR-12#2	83+53.93	1' D/S	Vertical	136.2	0.15	69'/136'
EXR-13#1	84+96.93	2.5' D/S	20°N	152.8	0	
EXR-13#2	85+24.93	2.5' D/S	3°N	145.5	0	

*TFR: Top of Firm Rock

TABLE NO. 7

EXPLORATORY BORINGS RIGHT ABUTMENT TRIPLE LINE

(REACH 1)

Boring Number	Station	Offset	Angle	Depth	Grout Take Sacks	Zone Placed
EXR-D17#1	1+80.5	Centerline	Vertical	104.9	0.615	88'/104.9'
EXR-1#1	1+00	3.5' U/S	17.5°N	111	0.15	75'/111'
					0.15	40'/111'
EXR-1#2	0+30	5' U/S	20°S	111	0	
EXR-2#1	71+67.43	5' U/S	20°S	39	0	TFR*
EXR-2#2	72+26.43	5' U/S	11.5°S	108.4	0.07	78'/108.4'
					0	63'/108.4'
EXR-3#1	72+32.43	5' U/S	20°S	114	0	
EXR-3#2	72+62.43	5' U/S	26°S	121	0.54	103'/121'
					0.15	38'/121'
EXR-4#1	74+03.93	5' U/S	22.5°N	121	0	
EXR-4#2	74+25.43	5' U/S	8.5°N	112.8	0	
EXR-4#3	74+39.43	5' U/S	Vertical	113	0	
EXR-4#4	74+52.43	5' U/S	20°S	120	0	
EXR-5#1	75+00.43	5' U/S	Vertical	114	0	
EXR-5#2	75+42.43	10' U/S	20°S	121	0	
EXR-5#3	75+85.43	5' U/S	Vertical	117	0	
EXR-6#1	75+95.43	5' U/S	36°S	146.2	0	

*TFR: Top of Firm Rock

CLARENCE CANNON GROUTING SUMMARIES

MONOLITH D-16 (REACH 3)

Grout Holes	ZONE 1 (El. 550-590 NGVD)					
	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes
D-16						
Primary	2	0	0	71.6	0.0	0.00
Secondary	2	1	50	76.0	0.3	0.00
Tertiary	4	0	0	141.0	0.0	0.00
TOTAL FOR D-16	8	1	13	288.6	0.3	0.00

CLARENCE CANNON GROUTING SUMMARIES
MONOLITH D-17 (REACH 3)

Grout Holes	ZONE 1 (El. 550-590 NGVD)						ZONE 2 (El. 590-620 NGVD)					
D-17 Upstream Line	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	Total Overburden
Primary Holes 10' Spacing	3	0	0	115	0	0	0	0	92.8	0	0	0
Secondary Holes 5' Spacing	2	0	0	79.4	0	0	0	0	61.4	0	0	0
Tertiary Holes 2-1/2' Spacing	5	3	60	208.9	8.67	0.0415	1	20	152.7	13.97	0.0915	0
Total for Original Pattern	10	3	30	403.3	8.67	0.0215	1	10	306.9	13.97	0.0455	0
4th Order Holes 1-1/4' Spacing	3	0	0	126.7	0	0	0	0	92.2	0	0	0
Total All Added Holes	3	0	0	126.7	0	0	0	0	92.2	0	0	0
Total for D-17 Upstream Line	13	3	23.1	530	8.67	0.0164	1	7.7	399.1	13.97	0.0350	0

CLARENCE CANNON GROUTING SUMMARIES
MONOLITH D-17 (REACH 3)

Grout Holes		ZONE 3 (El. 620-640 NGVD)					U.S. ZONE 1, 2 and 3 TOTAL (El. 550-640 NGVD)					
D-17 Upstream Line	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	Total Overburden
Primary Holes 10' Spacing	3	0	0	61.6	0	0	0	0	269.4	0	0	0
Secondary Holes 5' Spacing	2	0	0	40.8	0	0	0	0	181.6	0	0	0
Tertiary Holes 2-1/2' Spacing	5	0	0	101.8	0	0	3	60	463.4	22.64	0.0489	0
Total for Original Pattern	10	0	0	204.2	0	0	3	30	914.4	22.64	0.0248	0
4th Order Holes 1-1/4' Spacing	3	0	0	61.4	0	0	0	0	280.3	0	0	0
Total All Added Holes	3	0	0	61.4	0	0	0	0	280.3	0	0	0
Total for D-17 Upstream Line	13	0	0	265.6	0	0	3	23.1	1,194.7	22.64	0.0190	0

CLARENCE CANNON GROUTING SUMMARIES
MONOLITH D-17 (REACH 3)

Grout Holes	ZONE 1 (El. 550-590 NGVD)						ZONE 2 (El. 590-620 NGVD)					
D-17 Downstream Line	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	Total Overburden
Primary Holes 10' Spacing	5	3	60	211.6	256	1.2098	2	40	155.8	1.30	0.0083	18
Secondary Holes 5' Spacing	4	0	0	166.3	0	0	1	25	124.8	0.14	0.0011	9.5
Tertiary Holes 2-1/2' Spacing	10	2	20	422.9	4.22	0.0100	0	0	312	0	0	36.5
Total for Original Pattern	19	5	26.3	800.8	260.22	0.3250	3	15.8	592.6	1.44	0.0024	64
4th Order Holes 1-1/4' Spacing	6	0	0	198.1	0	0	0	0	181.5	0	0	0
5th Order Holes 6.5' D/S - New Line*	3	*	-	-	-	0	0	0*	60	2.6575	0.0443	0
Total All Added Holes	6	0	0	198.1	0	0	0	0	241.5	2.6575	0.0110	0
Total for D-17 Downstream Line	25	5	20	998.9	260.22	0.2605	3	12	834.1	4.0975	0.0049	64

*QFD 17-1 was tight in Zones 2 and 3, but was pressure backfilled with 5.315 cu.ft. cement with packer set at surface. This was done to seal 1+85 construction joint between D-16 and D-17.

NOTE: Overburden reflects only D-17 extension line

CLARENCE CANNON GROUTING SUMMARIES
MONOLITH D-17 (REACH 3)

Grout Holes	ZONE 3 (El. 620-640 NGVD)						D.S. ZONE 1, 2 and 3 TOTAL (El. 550-640 NGVD)					
D-17 Downstream Line	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Unit Take Sacks/Ft. of Hole.	Total Overburden
Primary Holes 10' Spacing	5	0	0	103.9	0	0	4	80	471.3	257.3	0.5459	18
Secondary Holes 5' Spacing	4	1	25	83.3	0.54	0.0065	1	25	374.4	0.68	0.0018	9.5
Tertiary Holes 2-1/2' Spacing	10	0	0	208	0	0	2	20	942.9	4.22	0.0045	36.5
Total for Original Pattern	19	1	5.3	395.2	0.54	0.0014	7	36.8	1,788.6	262.2	0.1466	64
4th Order Holes 1-1/4' Spacing	6	1	16.7	121	1.5	0.0124	1	16.7	500.6	1.5	0.0030	0
5th Order Holes 6.5' D/S - New Line	3	0	0*	60	2.6575	0.0443	0	0*	120	5.315	0.0428	0
Total All Added Holes	6	1	16.7	181	4.1575	0.0230	1	16.7	620.6	6.815	0.0110	0
Total for D-17 Downstream Line	25	2	8	576.2	4.6975	0.0082	8	32	2,409	269.02	0.1117	64

*QFD 17-1 was tight in Zones 2 and 3, but was pressure backfilled with 5.315 cu.ft. cement with packer set at surface. This was done to seal 1+85 construction joint between D-16 and D-17.

NOTE: Overburden reflects only D-17 extension line.

CLARENCE CANNON GROUTING SUMMARIES
RIGHT ABUTMENT TRIPLE LINE (REACH 2)

	ZONE 1 (El. 550-590 NGVD)							ZONE 2 (El. 590-620 NGVD)							
	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Sacks Sand Used	Unit Take Sacks/Ft. of Holes	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Sacks Sand Used	Unit Take Sacks/Ft. of Holes	Overburden
Upstream Line															
Primary	17	3	17.6	723.69	11.08	0	0.0153	17	1	5.9	542.81	0.38	0	0.0007	380
Secondary	17	5	29.4	723.69	2.7	0	0.0037	17	1	5.9	542.81	0.31	0	0.0006	386
Tertiary	34	4	11.8	1,447.38	5.15	0	0.0036	34	2	5.9	1,085.62	1	0	0.0009	778
Quanternary	3	2	66.7	127.71	1.38	0	0.0108	3	0	0	95.79	0	0	0	306
Fifth Order	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
TOTAL	71	14	19.7	3,022.47	20.31	0	0.0067	71	4	5.6	2,267.03	1.69	0	0.0007	1,892
Centerline															
Primary	17	3	17.6	723.69	1.91	0	0.0026	17	1	5.9	542.81	0.62	0	0.0011	320
Secondary	18	2	11.1	766.26	3.77	0	0.0049	18	0	0	574.74	0	0	0	331
Tertiary	36	4	11.1	1,532.52	2	0	0.0013	36	2	5.6	1,149.48	0.15	0	0.0001	661
Quaternary	2	1	50	85.14	0.7	0	0.0082	2	0	0	63.86	0	0	0	99
TOTAL	73	10	13.7	3,107.61	8.38	0	0.0027	73	3	4.1	2,330.89	0.77	0	0.0003	1,411
Downstream Line															
Primary	18	9	50	766.26	3,503.99	115	4.5728	18	4	22.2	574.74	433.01	0	0.7534	259.5
Secondary	18	6	33.3	766.26	1,929.19	205	2.5176	18	6	33.3	574.74	31.65	0	0.0551	308
Tertiary	36	11	30.6	1,532.52	657.85	0	0.4293	36	5	13.9	1,149.48	3.54	0	0.0031	612.5
Quaternary	32	9	28.1	1,361.93	21.07	0	0.0155	35	4	12.5	1,117.55	249.9	0	0.2236	746
Fifth Order	4	1	25.0	170.24	4.62	0	0.0271	8	0	0	255.44	0	0	0	318
TOTAL	108	36	33.3	4,597.21	6,166.72	320	1.3305	115	19	16.5	3,671.95	718.1	0	0.1956	2,244
TOTAL FOR REACH	252	60	23.8	10,727.29	6,145.41	320	0.5729	259	26	10.0	8,269.87	720.56	0	0.0871	5,547

CLARENCE CANNON GROUTING SUMMARIES
RIGHT ABUTMENT TRIPLE LINE (REACH 2)

	ZONE 3 (El. 620-640 NGVD)							ZONES 1, 2 and 3 TOTAL (El. 550-640 NGVD)							
	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Sacks Sand Used	Unit Take Sacks/Ft. of Holes	No. of Holes	No. of Holes Grouted	% of Holes Grouted	Linear Ft. of Drilled Holes	Sacks Cement Used	Sacks Sand Used	Unit Take Sacks/Ft. of Holes	Overburden
Upstream Line															
Primary	17	3	17.6	336.5	3.3	0	0.0098	17	7	41.2	1,603	14.76	0	0.0092	380
Secondary	17	4	23.5	338.5	22.7	0	0.0671	17	10	58.8	1,605	25.71	0	0.0160	386
Tertiary	34	5	14.7	671	1.07	0	0.0016	34	11	32.4	3,204	7.22	0	0.0023	778
Quaternary	16	3	18.8	349.5	58.47	0	0.1673	16	11	25.0	573	59.85	0	0.1045	306
Fifth Order	3	0	0	69	0	0	0	3	0	0	69	0	0	0	42
TOTAL	87	15	17.2	1,764.5	85.54	0	0.0485	87	39	36.8	7,054	107.54	0	0.0152	1,892
Centerline															
Primary	17	3	17.6	385.5	6.23	0	0.0162	17	6	35.2	1,652	8.76	0	0.0053	320
Secondary	18	2	11.1	420	15.54	0	0.0370	18	4	22.2	1,761	19.31	0	0.0110	331
Tertiary	36	5	13.9	838	0.65	0	0.0008	36	9	25.0	3,520	3.58	0	0.0010	661
Quaternary	6	2	33.3	138.5	0.194	0	0.0014	6	3	50	287.5	0.894	0	0.0031	99
TOTAL	77	12	15.6	1,782	22.614	0	0.0127	77	22	28.6	7,220.5	32.544	0	0.0045	1,411
Downstream Line															
Primary	18	2	11.1	486.5	1.65	0	0.0034	18	10	55.6	1,827.5	3,938.65	115	2.1552	259.5
Secondary	18	7	38.9	445	8.03	0	0.0180	18	10	55.6	1,786	1,968.87	205	1.1024	308
Tertiary	36	13	36.1	894.5	45.2	0	0.0505	36	21	58.3	3,576.4	706.59	0	0.1976	612.5
Quaternary	39	6	15.4	933.52	59.98	0	0.0643	39	15	38.5	3,413	330.95	0	0.0970	746
Fifth Order	14	0	0	348.32	0	0	0	14	1	7.1	774	4.62	0	0.0060	318
TOTAL	125	28	22.4	3,107.84	114.86	0	0.0370	125	57	45.6	11,377	6,949.68	320	0.6109	2,244
TOTAL FOR REACH	289	55	19.0	6,654.34	223.01	0	0.0335	289	111	38.4	25,651.5	7,089.764	320	0.2764	5,547

CLARENCE CANNON GROUTING SUMMARIES
RIGHT ABUTMENT SINGLE LINE (REACH 1)

Right Abutment Single Line (Reach 1)	ZONE 1 (El. 550-590 NGVD) No. of Holes	No. of Holes Grouted	% of Holes Grouted	Lin.Ft. of Grout Hole	Cement Cu.Ft.	Sand Cu.Ft.	Unit Take Cu.Ft./Lin.Ft.	ZONE 2 (El. 590-620 NGVD) No. of Holes Grouted	% of Holes Grouted	Lin.Ft. of Grout Hole	Cement Cu.Ft.	Sand Cu.Ft.	Unit Take Cu.Ft./Lin.Ft.	Overburden
Primary	21	5	23.8	898.0	1,575.8	-	1.755	6	28.6	670.6	2,734.6	37.5	4.134	885.31
Secondary	21	7	33.3	894.7	4,728.6	-	5.285	4	19.0	670.6	199.3	-	0.297	899.9
Tertiary	43	12	27.9	1,847.7	1,168.6	-	0.632	5	11.6	1,372.8	106.2	-	0.0774	1,834.3
Total Original Pattern Holes	85	24	28.2	3,640.4	7,473.0	-	2.053	15	17.6	2,714.0	3,040.1	37.5	1.134	3,619.5
4th Order	62	15	39.5	1,664.0	1,848.4	-	1.111	7	12.5	1,812.0	182.6	-	0.101	2,644.9
5th Order	37	7	50.0	614.5	6.1	-	0.00993	3	11.5	842.4	80.7	-	0.0958	1,705.6
6th Order	2	-	-	-	-	-	-	1	50.0	66.4	0.4	-	0.00602	77.0
Total All Added Holes	101*	22	42.3	2,278.5	1,854.5	-	0.814	11	13.4	2,720.8	263.7	0	0.0969	4,427.5
Total All Holes	186*	46	33.6	5,918.9	9.327.5	-	1.576	26	15.6	5,434.8	3,303.8	37.5	0.615	8 ,047.0

*Zone 1 has 38 -4th Order Holes and 14 - 5th Order Holes
Zone 2 has 56 - 4th Order Holes, 26 - 5th Order Holes and 2 - 6th Order Holes

CLARENCE CANNON GROUTING SUMMARIES
RIGHT ABUTMENT SINGLE LINE (REACH 1)

Right Abutment Single Line (Reach 1)	No. of Holes	ZONE 3 (El. 620-640 NGVD)						ZONES 1-3 TOTAL (El. 550-640 NGVD)						Overburden
		No. of Holes Grouted	% of Holes Grouted	Lin.Ft. of Grout Hole	Cement Cu.Ft.	Sand Cu.Ft.	Unit Take Cu.Ft./ Lin.Ft.	No. of Holes Grouted	% of Holes Grouted	Lin.Ft. of Grout Hole	Cement Cu.Ft.	Sand Cu.Ft.	Unit Take Cu.Ft./ Lin.Ft.	
Primary	21	8	38.1	447.0	516.3	-	1.155	15	71.4	2,015.6	4,826.7	37.5	2.413	885.31
Secondary	21	7	33.3	447.0	44.9	-	0.100	11	52.4	2,012.3	4,972.8	-	2.471	899.9
Tertiary	43	14	32.6	915.2	1,433.1	-	1.566	23	53.5	4,135.7	2,707.9	-	0.655	1,834.3
Total Original Pattern Holes	85	29	34.1	1,809.2	1,994.3	-	1.102	49	57.6	8,163.6	12,507.4	37.5	1.537	3,619.5
4th Order	62	20	32.3	1,344.8	35.5	-	0.0264	31	50.0	4,820.8	2,066.5	-	0.429	2,644.9
5th Order	37	15	40.5	808.6	94.4	-	0.117	21	56.8	2,265.5	181.2	-	0.0800	1,705.6
6th Order	2	1	50.0	42.6	0.5	-	0.0117	1	50.0	109.0	0.9	-	0.00826	77.0
Total All Added Holes	101	36	36.6	2,196.0	130.4	-	0.0594	53	52.5	7,195.3	2,248.6	-	0.313	4,427.5
Total All Holes	186	65	34.9	4,005.2	2,124.7	0	0.530	102	54.8	15,358.9	14,756.0	37.5	0.963	8,047.0

(f) Lower Gallery Modification Grouting

During the scheduled weekly instrumentation readings in the lower gallery on 7 April 1980, it was reported that downstream drain DDG-D14#1, in Monolith D-14, was flowing murky water. Upon further observation, it was noted that the flow of water from these gallery drains increased in proportion to the raise in the upstream pool above El. 529 feet NGVD. On 5 June 1980 during a second high pool stage, a peak of El. 546.4 feet NGVD was reached and the downstream lower gallery drain (DDG-D14#1) had a silty discharge of 2.4 gpm. The total discharge of all the gallery drains at that time was 11.46 gpm. As a result of these observations, a detailed pressure testing program of the lower gallery drains in Monoliths D-13 through D-15 was implemented by SLD field exploration personnel and by Boyles Bros. Drilling Co. from February 1981 through May 1981. In addition, the above drains were photographed by personnel from the SW Division using a bore hole camera.

Pressure test takes in the lower gallery drain of Monolith D-15 occurred in a range between 5 feet and 10 feet in depth indicating an opening at the shale/monolithic foundation contact. An exception was DUG-D15#1 which had a take of 0.64 cfm at a depth of 10 feet to 15 feet due to the presence of two joint systems at 7.7 feet and 8.3 feet in depth. Down-the-hole photographs revealed that these two relief joints were oriented at N60°E with a dip of 20°SE and iron stained. This data agrees closely with the foundation drawing showing their surface expression. Generally, the joints in the monolithic foundation are limited in number and, with the exception of DUG-D15#1, the pressure test results indicate that they are tight. In Monolith D-14 of the lower gallery, three areas of grout takes were indicated by pressure test data and photographic logs. The first area was an opening at the concrete/shale foundation contact. Based on data from photographic logs and pressure tests,

this contact was determined not to be as open as in Monolith D-15. The second area was a region of high-angle relief joints open to depth which were encountered in drains DDG-D14#1 and #2. The last area was an 1/8-inch open calcareous bedding plane. Testing data indicated that the seam would accept only a small quantity of very thin grout. Data from pressure test and photographic logs in Monolith D-13 of the lower gallery indicated two areas of possible take. The first area was in the region of DUG-D11/12#11 and DDG-D11/12#10. The second was below the Hannibal Shale and Louisiana Limestone contact (El. 470 feet NGVD). Subsequent pressure tests in Monolith D-13 indicated that take in the region of DUG-D11/12#11 and DDG-D11/12#10 was localized and that the formation would not accept grout due to a reduced pressure test take of 0.18 cfm after 52 minutes. A summary of the single zone pressure test results is listed in Table No. 8. As a result of the pressure testing program in Monoliths D-13 through D-15, Modification No. P00006 (Corps File D) to subject contract was issued.

Modification No. P00006 called for the grouting of all existing drains in Monoliths D-14 (El. 528 feet NGVD) and D-15 (El. 551 feet NGVD).

The placement of the abutment grout plant and portable sump was similar to the setup outlined in the narrative for Reach 7 grouting. The main difference in the setup was the placement of a continuous 1 1/2-inch metal pipe line from the abutment grout plant to Monolith D-14 and back to the abutment grout plant. Grout was supplied from this pipe line to the portable sump via a system of in-line valves and rubber hoses. Again, the setup between the portable sump and grout header was similar to Reach 7 grouting. This system allowed for a relatively quick change in grout mixes as dictated by the behavior of the grout flow. The sequence of events prior to actual grout injection were as follows:

(1) Groundwater was measured in each drain.

(2) Initial USBR and Carlson piezometer readings were noted.

(3) The drains were dewatered with a diaphragm pump.

(4) The drains were backfilled with 6:1 grout to displace any water left after dewatering operations.

(5) Mechanical packers with Ashcroft gages were placed in the top of all the drain casings in a monolith.

(6) In Monolith D-15, jam packers were placed at a depth of from 10 feet to 15 feet.

Grouting in Monolith D-14 was accomplished on 22 November 1980. In Boring DDG-D14#1, 7[illegible].5 bags of cement were placed. The grout mixes ranged from a water/cement ratio of 6:1 to 1:1 with fluidifier (Inter-Aid 1-5) and red dye being used as additives. All of the eight other drains on the Monolith D-14 level were grouted by communication from DDG-D14#1 as evidenced by the gage pressure on the mechanical packers. Each of the eight drains grouted by communication was hooked individually then backfilled to ascertain refusal with 1.25:1 grout. Considerable communication to the upstream shotcrete via an abandoned extensometer bore hole occurred while grouting the DDG-D14#1 drain. On 23 November 1980, the drains in Monolith D-15 were grouted. Drain DDG-D15#2 was connected and grouted with mixes ranging from a water/cement ratio of 6:1 to 4:1. The eight other drains on the Monolith D-15 level were grouted by communication. Drains DDG-D15#3 and DUG-D15#3 were connected individually, but the remainder were not connected because maximum pressure was reached on each and it was felt that no further connections were required.

A total of 15 bags of cement was placed in the drains on the Monolith D-15 level. The two drains on the Monolith D-16 level (DDG-D15#5 and DUG-D15#5) were grouted at mixes ranging from 4.5:1 to 3:1 and four bags of cement were placed. During grouting, communication to the downstream D15/D16 construction joint was detected. Refusal criteria for the grouting program was 1 cubic foot injected per 20 minutes (refer Drawings Nos. 187/2 through 190/2 for location, pressure test and grout take results).

UPSTREAM DRAINS	
Boring Number	Pressure Test Results (cfm)
DUG-D11/12#11	0.35
DUG-D13#1	No test
DUG-D13#2	0
DUG-D13#3	0
DUG-D13#4	No test
DUG-D14#1	0.26
DUG-D14#2	2.14
DUG-D14#3	0.71
DUG-D14#4	0.10
DUG-D14#5	No test
DUG-D14#6	No test
DUG-D15#1	1.3
DUG-D15#2	0.43
DUG-D15#3	0.43
DUG-D15#4	0.20
DUG-D15#5	0.08

DOWNSTREAM DRAINS	
Boring Number	Pressure Test Results (cfm)
DDG-D11/12#10	0.2
DDG-D13#1	0.1
DDG-D13#2	0.16
DDG-D13#3	0.13
DDG-D13#4	0.43
DDG-D14#1	3.37
DDG-D14#2	2.14
DDG-D14#3	0.43
DDG-D14#4	0.14
DDG-D14#5	0.57
DDG-D15#1	1.7
DDG-D15#2	2.0
DDG-D15#3	1.86
DDG-D15#4	0.7
DDG-D15#5	1.1

TABLE NO. 8

Phase II of the lower gallery modification (Modification No. P00007, Contract No. DACW43-79-C-0107) provided for the following items of work:

(1) Drilling, pressure testing and grouting of a line of grout holes along the center of the lower gallery walkway in Monolith D-14 (El. 528 feet NGVD) and Monolith D-15 (El. 551 feet NGVD).

(2) Drilling, pressure testing and grouting of vertical and inclined exploratory holes on El. 528 foot NGVD and El. 551 foot NGVD levels.

(3) Drilling and pressure testing of near-horizontal exploratory holes in the lower gallery shafts of Monoliths D-13 and D-14.

(4) Redrilling and extension of the drains on El. 551 foot NGVD level of the lower gallery.

(5) Installation of new drains on El. 528 foot NGVD level of the lower gallery and in the Monoliths D-13 and D-14 shafts.

(6) Installation of two additional piezometers (telemac vibrating wire) on El. 528 foot NGVD level.

(7) Placement of plastic liners in Monoliths D-13 through D-15 gallery drains.

(8) Welding of metal caps on the nipples of grouted borings in Monoliths D-1 through D-11/12.

The modification also required that each grout and exploratory boring be cored with either a conventional (NX) or wire line (NQ) core barrel. The rock core would be logged and photographed by a geologist furnished by the Contractor. Each boring would be pressure tested in 5-foot intervals with a single packer--takes were isolated with a double packer. The borings would then be photologged prior to grouting. The modification further stated that no drilling and grouting would be allowed at the same time in the respective monolith. The grouting equipment arrangement and grouting

procedure would be the same as outlined in Modification No. P00006 (Phase I of this contract).

The first phase of work from 4 December 1980 to 16 January 1981 began with the primary and secondary grout holes in Monoliths D-14 and D-15. A total of 16 grout holes was drilled, pressure tested, photologged and pressure grouted. The grout borings in the two monoliths were treated as a single section. The greatest grout take for the primaries was PWX-D14#1 with the placement of 4.4 bags of cement at a water/cement ratio of 6:1. Based upon the pressure test results, only two of the seven secondaries were grouted. The greatest grout take for the secondaries was SWX-D13#1 with the placement of 0.7 bag of cement at a water/cement ratio of 6:1. Three splits were located by Monolith D-14 drain (DDG-D14#1) as per the recommendation of the grouting consultant. Based upon the pressure test, only one grout hole was "hooked"; however, it had no take (refer Drawings Nos. 187/2 and 190/2 for the as-drilled grout hole locations, pressure test data and unit grout takes).

The vertical and inclined exploratory borings were began on 6 January 1981 and completed on 3 February 1981. Of the 11 borings, two were grouted and neither of them had any appreciable grout take. The two near-horizontal exploratory borings were drilled in both Monoliths D-13 and D-14 and, after pressure testing, the four were found to be tight and left open as drains. Exploratory Boring EX-D16#1 intersected a clay-filled joint in the Hannibal Shale at El. 549 feet NGVD. Boring EX-D16#1 was grouted, but took only 0.53 bag of cement. Two other exploratory borings (EX-D16#2 and EX-D15#4) were drilled to intersect the clay-filled joint and both pressure tested tight.

In addition, the joint clay filling was examined by LMVD, SLD and the Resident Geologist at the conclusion of the Cannon Geotechnical Conference on 7 and 8 April 1981. It was agreed that the clay-filled joint encountered in Exploratory Boring EX-D16#1 would present no apparent threat to the integrity of the structure. All exploratory borings were photographed then the vertical and inclined borings were backfilled. Locations of exploratory borings and their pressure test results can be found on Table No. 9.

Redrilling and extension of drains grouted under Modification No. P00007 on the El. 551 foot NGVD level of the lower gallery began on 3 February 1981 and was completed on 31 March 1981. These drains were extended from El. 503± feet NGVD to El. 482± feet NGVD.

New drains on the El. 528 foot NGVD level were completed between [illegible] February 1981 and 31 March 1981. The 24 new drains on the El. 528 foot NGVD and El. 551 foot NGVD levels were drilled and pressure tested. Twice these drains were drilled to a 5±-foot depth and pressure tested; after pressure testing, the drains were drilled to depth and retested. The pressures ranged from 10 psig on the El. 551 foot NGVD level to 26 psig on the El. 528 foot NGVD level. All of the new drains pressure tested tight and were left open to act as drains (refer Drawings Nos. 187/2, 188/2 and 189/2 for the location of the new drains on the El. 528 foot NGVD level).

All of the drains between El. 493 feet NGVD and El. 551 feet NGVD in the lower gallery were lined with Type I, Schedule 80, nominal size 2 1/2-inch polyvinyl-chloride pipe. This pipe is perforated with 1/4-inch diameter holes, 14 per foot, spaced equidistant both longitudinally and circumferentially. Two vibrating wire (telemac) piezometers were installed (PVW-01

at Station 2+61, 17.55 feet upstream, El. 517 feet NGVD; and PVW-02 at Station 2+61, 1.05 feet upstream, El. 518.9 feet NGVD). The casings for the original upstream drains grouted by Boyles Bros. Drilling Co. in Monoliths D-1/2 through D-11/12 were cut 3 inches from the top of the gutter invert and a 1/4-inch circular steel plate was welded on the top of the remaining nipple. In addition, the casing for the grouted Monoliths D-14 and D-16 drains were cut flush with the gutter invert.

CONCLUSION

As a result of the exploratory data, the new drains pressure test results and the reaction of the gallery drains to the 27 July 1981 period of high pool elevation, the design elements felt that the grouting program was successful.

VERTICAL AND INCLINED EXPLORATORY BORING
LOCATIONS AND PRESSURE TEST DATA
FOR EL. 528 FOOT NGVD AND
EL. 551 FOOT NGVD LEVELS

Boring Number	Station	Offset	Pressure Test Data
EX-D14#1	2+74.5	7.25' U/S	Largest take with double packer 0.054
EX-D14#2	2+73.0	9.75' U/S	0.024
EX-D14#3	2+71.0	7.55' U/S	0.026
EX-D14#4	2+68.0	9.75' U/S	0.032
EX-D14#5	2+57.5	7.25' U/S	0
EX-D15#1	2+44.5	7.75' U/S	Largest take with single packer, 5' intervals 0.012
EX-D15#2	2+33.0	7.75' U/S	Largest take with single packer 5' intervals 0.024
EX-D15#3	2+26.5	7.75' U/S	0
EX-D15#4	2+24.0	7.75' U/S	0.14
EX-D16#1	2+14.5	2.25' U/S	0.35
EX-D16#2	2+12.0	3.0' U/S	0

TABLE NO. 9

SECTION 13

RECOMMENDATIONS

It is recommended that the following comments be incorporated into future plans and specifications for water retention structures since these comments are direct results of construction problems and/or modifications.

A. Blasting

Due to the continuing technological advances in the art of controlled blasting, it is recommended that, in the Technical Provisions of all future contracts requiring rock excavation, the Contractor be required to furnish current technical literature from the manufacturer concerning the types of detonating systems, the types of explosives (blasting agents, water gels, etc.) and the recommended safety precautions.

The Main Dam specifications recommended that the Contractor perform a test shot prior to the initiation of the blasting program. In the interest of eliminating possible extensive foundation damage and costly repair, a test shot or series of test shots for presplitting and production shots should be a specification requirement.

B. Access During Abutment Excavation

The lack of a designed "access bench" for the right abutment 1V:1H slope created numerous construction difficulties. Due to the design of the abutment, everything was tunnelled down into the excavation which, at times, created chaotic situations and unsafe working conditions. This problem resulted in the installation of extra rock bolts and the extension of the safety curtain.

The addition of at least one bench would have greatly improved access for concrete, rockbolting and shotcreting operations. Consequently, it is recommended that, for safety and expediency, future abutment designs include some type of "access bench".

C. Lower Gallery Grouting and Drain Hole Drilling

The specifications required the Contractor to delay all work on the lower gallery foundation drainage system until that particular monolith was at least 90% complete. By delaying this particular feature of work, considerable contract expense was added due to restrictive access and cramped working quarters. Since the controlling elevation for grouting and pressure testing operations was the amount of "cover" (rock and overburden) upstream of the structure, it is recommended that all future foundation drainage contract work commence when the floor of the lower gallery reaches grade.

D. Recommended Definitions and Methods of Payment for the Various Types of Foundation Treatment Within the Embankment Limits

Due to Modification No. P00085, the definitions of foundation preparation and dental excavation were very similar, and consequently caused numerous administrative problems with payment. In order to eliminate this problem, the following definitions should be incorporated into future specifications:

1. Foundation Preparation: Shall consist of the removal and disposal of all loose, drummy, fractured, jointed and weathered rock within the designated pseudo-core limits as shown on the appropriate foundation drawing. The unsatisfactory material shall be removed by shovels, picks, pry bars, jack hammers, jigger drills and high velocity air or air-water jets. The treated surfaces shall be continually cleaned with high velocity

air or brooms after each cycle of treatment until the surface is approved by the Contracting Officer's Representative.

The method of payment shall be by the number of manhours set forth in the bidding schedule (payment similar to Modification No. P00085). This method of payment would allow for considerable latitude in degree of treatment and provide for a more equitable payment to the Contractor.

2. Dental Excavation: Shall consist of the "veeing" of natural and man-made joints, fractures and weathered bedding planes to a minimum depth of 6 times to 8 times their width and the disposal of the resulting material. Dental excavation would be required throughout the entire embankment contact area.

The method of payment should be by the volume of concrete required to backfill the dental excavation.

3. Foundation Cleanup Outside the Pseudo-core Limits: Shall consist of the removal and disposal of loose, fractured, weathered, semi-detached rock outside the limits of the pseudo-core. The unsatisfactory material shall be removed with shovels, picks, pry bars, jack hammers, jigger drills and high velocity air or air-water jets. The treated surfaces shall be continually cleaned with high velocity air or brooms after each cycle of treatment until the surface is approved by the Contracting Officer's Representative.

The method of payment would be the same as Foundation Preparation; however, fewer manhours would be alloted since the degree of treatment would be less.

E. Recommended Foundation Treatment Procedures For Air-Sensitive Roundations

The Hannibal Shale at Clarence Cannon was very air sensitive. The specifications required the contractor to cover the final surface within eight hours with compacted fill. Generally the foundation surface was prepared and approved the night before but was not covered until the start of the following day shift. Generally the surface would quickly dry out when exposed to the morning sun/wind. Therefore additional cleanup was required. Consequently in future specifications it is recommended that the contractor be required to work 24 hour shifts when dealing with such foundations and that final cleanup be at night with at least 18 inches of fill in place by sunrise.

F. Recommended Construction Practices and Specification Additions Dealing With Embankment Construction

1. Sand Chimney: Suggest that the sand chimney be designed vertically if at all possible as opposed to being inclined. A vertical design allows construction to be performed in a cut and cover method which provides for a fully compacted contact plane between the sand and impervious embankment and also restricts lateral sand displacement during compaction. In addition, the specifications should require the Contractor to construct the sand chimney using a cut and cover method.

2. Pervious Fill, Chimney and Filter Layers: When the pervious layers are placed between zones of materials and it is necessary to place them on an incline, it is suggested that the specifications require the Contractor to overbuild and cut the underlying slopes back to fully compacted materials in order to prevent an uncompacted interface between the pervious and impervious materials.

3. Pervious Fill Lift Thickness: Experience with pervious fill has shown that vibratory rollers obtain little compaction near the surface and greatest densification in the zone between 1 foot and 3 feet beneath the working surface. As a result, there seems to be little benefit in requiring placement in 8-inch lifts and it is suggested, for reasons of economy, that future specifications allow the Contractor to place pervious fill in lifts of up to 18 inches as long as the required compaction is ultimately obtained throughout each lift. Reference Shannon and Wilson's Report titled Investigation of Compaction Control Procedures, Clarence Cannon Dam and Reservoir, MO. Performed by Shannon and Wilson under Contract No. DACW43-78-D-0050 St. Louis District COE.

4. Pervious Fill Compaction: To allow filter zones and chimneys to have greater "crack stopping" and self-healing properties during settlement, it is suggested that consideration be given to lowering the required relative density of 85% (O.C.E.). A pervious fill with a lower relative density would be more economical to place and would ultimately result in a less brittle and higher quality embankment.

5. Embankment Placement: It is standard practice to place all embankment in lifts running parallel to the dam axis. While this procedure is generally followed, it is recommended that a statement be incorporated into the specifications to this effect.

6. Frozen Embankment Material: In order to remove impervious fill which had been frozen below that which could be reprocessed with normal construction equipment at the start of the 1981, 1982 and 1983 construction seasons, it was necessary to modify the contract. Consequently, in future specifications the removal of this material should be incorporated into contract work with the appropriate bid items.

7. Increased Moisture Content for Embankment Placed Adjacent to the Concrete Structure and Left Abutment: The contract documents were modified (Modification No. P00118) to increase the moisture content (0% to +3%) for embankment material within 6 feet in a horizontal distance along the pseudo-core limits and for some distance out from the face of Monolith D-1/2. Consequently, future specifications should incorporate this practice of increasing the embankment moisture content up to the width of construction equipment.

8. Embankment Placement Adjacent to Dam Instrumentation: Future specifications should contain the requirement that all fill adjacent to dam instrumentation should be placed and compacted in advance of the surrounding fill in order to better "tie" this fill into the surrounding fill and to prevent ponding of water around the instrumentation risers.

9. Battered Concrete Fillets: Future specifications should contain the requirement for battered concrete fillets (1/2V:1H to 1V:1H).

G. Instrumentation

To date, no permanent piezometers have been installed beyond approximate road stationing 72+00 on the right abutment. In the interest of monitoring potential seepage in areas of high grout takes, e.g., PDR-17, 1,275.5 sacks; QSR-85, 1,270 sacks; SSR-8, 2,651 sacks; and QSR-103, 1,738 sacks (shown on Drawings Nos. 157/2 through 169/2) it is recommended that at least 4 pair of piezometers (1 upstream and 1 downstream of the grout curtain) be installed.

The twin-tube hydraulic USBR Piezometers installed in the concrete structure and earthen embankment have proven to be more reliable than the Carlson and Telemac Systems. The cost of installation does not favor the USBR System, but its dependability makes the USBR System hard to rule out.

*U.S.G.P.O:1984-564-058/10077

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